A STUDY ON
KALANJAGAPADAI
(Psoriasis)

Dissertation Submitted To

THE TAMIL NADU Dr. M.G.R. Medical University

Chennai – 32

For the Partial fulfillment for the Award of Degree of

DOCTOR OF MEDICINE (SIDDHA)

(Branch – III, SIRAPPU MARUTHUVAM)

DEPARTMENT OF SIRAPPU MARUTHUVAM

Government Siddha Medical College

Palayamkottai – 627 002.

OCTOBER - 2018

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ACKNOWLEDGEMENT

The author is extremely grateful to Lord Almighty who empowered the author with His blessings and grace to complete this dissertation work successfully.

I take this opportunity to express my gratitude to the Vice Chancellor, The Tamilnadu Dr.M.G.R. Medical University, Chennai and The Director. Directorate of Indian Medicine and Homeopathy, Chennai who flagged my dissertation with cheer.

My grateful thanks to **Prof. Dr. R. Neelavathy, M.D.(s), Ph.D.,** Principal, Government Siddha Medical College, Palayamkottai and **Prof. Dr. S .Victoria M.D (s)** Vice - Principal, Government Siddha Medical College, Palayamkottai for permitting me to make use of facilities available in this institution to bring out the dissertation, a successful one.

The author is grateful to **Dr.A.S.Poongodi Kanthimathi.,M.D(S).,** Professor, HOD, Department of Sirappu Maruthuvam, (P.G III),Government Siddha Medical College, Palayamkottai for her valuable guidance regarding these studies.

I would like to show my gratitude to my guide **Dr.M. Ahamed Mohaideen, M.D(s).,** Associate Professor, Department of Sirappu Maruthuvam for his kind guidance and good co-operation to make the easy way to complete the dissertation.

I would like to show my gratitude to Lecturer (Grade II) **Dr.S.Sujatha M.D(s).,** Department of Sirappu Maruthuvam for her kind guidance and good co-operation to make the easy way to complete the dissertation.

I would like to show my gratitude to Lecturer (Grade II) **Dr.G.Ganesan M.D(s).,** Department of Sirappu Maruthuvam, for his kind guidance and good co-operation.

I would thank to Lecturer (Grade II) **Dr.R. Vanamamalai M.D (s),** Department of Sirappu Maruthuvam for his kind guidance and good co-operation.

The author is thankful to **Mrs.Nagaprema M.Sc.,** Head of the Department Biochemistry, Government Siddha Medical College, Palayamkottai for all technical assistants of clinical laboratory for their help in evaluating the trial drugs.

The author is so grateful to **Dr. Mr. .Kalaivanan M.Sc.,M.Phil.,Ph.D** Lecturer, Department of Pharmacology, Government Siddha Medical College, Palayamkottai in carrying out the Pharmacological analysis of the trial drugs, needs special mention and appreciation.

I express my thanks to **Dr.S.Sudha, M.Sc., M.Ed., Ph.D.,** Associate Professor, Department of Medicinal Botany, Government Siddha Medical College, Palayamkottai for the guidelines in identification of herbal drugs.

I sincerely thank the great **Siddhars** who show me the right pathway in Siddha system. My heartful thanks to my colleagues and friends for assisting and helping in many ways.

Finally, I am very thankful to the computer centre, **Mr. M.Maharaja**, **Maharaja DTP services** Tiruchendur road, Palayamkottai for his kind co-operation in bringing out this dissertation work in an excellent format.

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Guide	Dr.M.Ahamed mohideen.M.D(s) Reader Dept of sirappu maruthuvam.
Dissertation topic	An open clinical Study to evaluate the clinical efficacy of siddha sasthric formulation "**OMA LEGIYAM**"(Internal)"**THAGARAI LEBAM**"for the treatment of **KALANJAGAPADAI**.
Document field	1. Protocol2. Date Collection Form 3. Patient Information Sheet 4. Consent form5. SAE (Pharmacovigilance)
Clinical / Non Clinical trial Protocol	Clinical trial protocol – Yes
Informed consent document	Yes
Any other document	Case sheet, Investigation document
Date of IEC approval & it's Number	GSMC/3.IEC/2016/III-25/20.07.16

We approve the trial to be conducted in its presented form.

The Institutional Ethical committee expects to be informed about the process report to be submitted to the IEC at least annually of the study, any SAE occurring in the course of the study and changes in the protocol and submission of final report.

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CERTIFICATE OF BOTANICAL AUTHENTICITY

Certified the following plant drugs used in siddha formulation **OMA LEGIYAM (INTERNAL) & THAGARAI LEBAM (EXTERNAL)** for management of **KALANJAGAPADAI (PSORIASIS)** taken up for post-graduation dissertation studies by **Dr. T.MURUGAVEL M.D (S). , (REG.NO:321513006)** PG scholar, department of sirappu maruthuvam are correctly identified and authenticated through Visual inspection / Organoleptic characters / Experience, Education & Training morphology, microscopical and taxonomical methods.

INGREDIENTS OF OMA LEGIYAM

S.NO	DRUGS	BOTANICAL NAME	FAMILY	PART USED
1.	Omam	Trachyspermum ammi	Apiaceae	Fruit
2.	Kukkil	Commiphora mukul	Burseraceae	Gum resin
3.	Karbogarisi	Psoralea corylifolia	Fabaceae	Seed
4.	Amukkara	Withania somnifera	Solanaceae	Root
5.	Parangipattai	Smilax china	Liliaceae	Root

INGREDIENTS OF THAGARAI LEBAM

S.NO	DRUGS	BOTANICAL NAME	FAMILY	PART USED
1	Thagarai	Cassia tora	Fabaceae	Seed
2	Vaividangam	Embelia ribes	Myrsinaceae	Seed
3	Vetpalai	Wrightia tinctoria	Apocynaceae	Bark
4	Sengaluneer	Nymphaea alba	Nymphaeaceae	Rhizome
5	Maramanjal	Coscinium fenestratum	Menispermaceae	Rhizome
6	Kondrai	Cassia fistula	Caesalpiniaceae	Fresh leaf
7	Kodiveli	Plumbago zeylanica	Plumbaginaceae	Root
8	Manjal	Curcuma longa	Zingiberaceae	Rhizome
9	Erukku	Calotropis gigantia	Asclepiadaceae	Root
10	Kostam	Saussurea lappa	Asteraceae	Rhizome
11	Nelli	Phyllanthus emblica	Euphorbiaceae	Seed
12	Karpoga arisi	Psoralea corylifolia	Fabaceae	Seed

Station: palayamkottai.

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Prof. Dr. R.Neelavathy M.D (Siddha)., Ph.D.,
Prinicipal.

INTERNATIONAL JOURNAL OF ADVANCED MULTIDISCIPLINARY RESEARCH (IJAMR)
ISSN:2393-8870
www.ijarm.com
IMPACT FACTOR: 3.565, ICV:80.43(2016)

DARSHAN PUBLISHERS

Editorial Board Member of
International Journal of Advanced Multidisciplinary Research (IJAMR)
is hereby awarding this certificate to

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In recognition of the publication of the paper entitled **"Review on single plant for the management of Amenorrhoea"** published in IJAMR Journal, Volume: 5, Issue: 4, Year: 2018.

Managing Editor
DARSHAN PUBLISHERS
8/173, Vengayapalayam,
Seerappalli (Po.), Rasipuram (Tk.),
Namakkal (Dt.)-637 406.
Tamil Nadu, India.

Editor in Chief
IJAMR
Website : www.ijarm.com
E-mail: editorijarm@gmail.com

INTERNATIONAL JOURNAL OF CURRENT RESEARCH IN MEDICAL SCIENCES
ISSN:2454-5716
P-ISJN: A4372-3064, E -ISJN: A4372-3061
www.ijcrims.com
Impact Factor: 4.363, ICV :80.68 (2016)

PUBLICATION CERTIFICATE

Editorial Board Member of

International Journal of Current Research in Medical Sciences

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Dr Aysha S*[1], Dr Murugavel T [2], Dr Poongodi Kanthimathi [3], Dr Ganesan G[4]

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In recognition of the publication of the paper entitled **"Antioxidant activity of Mathiyooshna Rasayanam"** published in IJCRMS Journal, Volume: 4, Issue: 5, Year: 2018.

Dr. N.S. NEKI
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IJCRMS
Website: www.ijcrims.com
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INTRODUCTION

Siddha system is one of the oldest traditional system of the medicine in India mostly folled. Term "Siddha" means achievements and the "Siddhars" were saintly figures who achieved results in medicine through attainment of siddhi .

"Siddham" means "Arivu" or "Complete knowledge"

According to siddha predictions the siddha principles were presented to the followers of lord shiva and sakthi, to siddhars, starting with siddhar nantheesar. Then to siddhar thirumoolar, agathiyar and other disciples along with the 18 siddhars and so on.

Fundamental principles

"அண்டத்திலுள்ள பிண்டம்

பிண்டத்திலுள்ளதே அண்டம்"

Anda pinda ottrumai, 96 thathuvams. Including pancha poothams and three humoral concepts are the fundamental principles of this incomparatble which advocates curative, preventive measures and educates natural way of lifestyle.

According to siddha medical science the universe consist of 5 elements.

Earth, water, fire, air and ether which correspond to the five senses of the human body. Man consumes water and food breathes the air and then maintains the heat in the body.He is alive because of the life force given by ether.

- The earth is the element which gives fine shape to the body. Including bones, tissues, muscles, skin hair etc.
- Water is the element representing blood. Secretions of the glands vital fluid etc.
- Fire is the element that gives emotion, vigor and vitality to the body. It also helps digestion, circulation and stimulation besides respiration and the nervous system.

Above all other is the characteristic of man's mental and spiritual faculties. A suitable propostion of these five elements in combination with each other produce a healthy person.

According to the theories of humoral pathology, all diseases are caused by the inharmonious mixture of vadham, pitham and kapham.

Their proportions in the body govern a person's physical and mental disposition.

It is evident from the following qoute.

"வாதமலாது மேனி கெடாது" – தேரையர்.

Diagnostic tools in siddha

"மதித்திடற் கருமை வாய்ந்த
மாண்கரிகாரமெல்லாந்
துதித்திட வுணர்ந்தானேனுந்
துகளறப் பணியின்றன்மை
பரித்திட வுணராணாகிற்
பயனுறாணாகாலானே
விதித்திடு பிணித்திறத்தை
விளம்புது முதற்கண் மன்னோ"

- *சிகிச்சாரத்தின தீபம் 3 பக்கம்*

The above literature quotes that diagnosis is very indispensible for physicians to treat the diseases.

Noi nadal (to diagnose the affected disease) and noi mudal nadal (To find out the root cause of the disease) are the crucial approaches employed in siddha for diagnoses.

Therefore permanent remedy is also achievable since the treatment is focussed to cure the diseases and root cause of the disease.

"Envagai Thervugal" is the diagnostic tool followed in siddha for arriving right diagnosis. It is evident from the following siddhars quotes

"நா நிறம் மொழி விழி மலமூத்திரம்
நாடி பரிச மிவை மருத்துவராயுதம்"

- *நோய் நாடல் நோய் முதனாடல் -253*

Treatment aspects in siddha

Siddha is the only system comprising 64 varieties of medicines i.e. 32 classification of internal medicines and 32 classification of external medicines. Varmam and thokkanam are exceptional treatment practices in siddhars to cure neuro-muscular skeletal disease.

Yoga, pranayamam, dhiyanam is adviced for chronic diseases and especially. Psychomotor diseases.

Siddhars developed in kayakarpam methods mainly for longevity with complete freedom form illness and for preventing ageing problems.

Kalanjagapadai which is correlated with psoriasis has been a challenge to medical world psoriasis and the clinical symptom of Kalanjagapadai are prominate to each other.

Yugi one of the 18 siddhars speaks about Kalanjagapadai. But he has not explained it as a separate disease.

The disease and its effects on the human system have been dealt with only in a sketchy fashion.

He has just made a mention in the classification eighty vadha disease such a kalanjaga vadha is one among them.

His dealing with this disease explain the nature of skin and its complication on joint as well (psoriatic arthritis).

Inspiteof lack literature about skin disease. It can be clearly stated that the root cause of Kalanjagapadai in the aggrevation of vadha dosha.

The following pages sketch the research work done on Kalanjagapadai and the suggestion and recommendation offered for over coming it.

AIM AND OBJECTIVES

AIM

The main aim of the study in to conduct an open clinical on kalanjagapadai to evaluate the efficacy of the trial medicines.

OBJECTIVES

Primary objectives

To evaluate the clinical efficacy of ***OMA LEGIYAM*** internal medicine and THAGARAI LEBAM as external medcine for the diseases kalanjaga padai (psoriasis).

Secondary objectives

1. To study the efficacy of additional therapies like yoga meditation and asanas in healing the disease along with the internal and External medicines
2. To compare the etiology, clinical features sign and symptoms of kalajagapadai in siddha systems of psoriasis in modern science.
3. To screen the elements present in the trial drug.
4. To access the siddha basic principles like mukkutrum, 7 udarkattukal, envagai thervu, neerkuri and neikuri.
5. To confirm the diagnosis in siddha system with the help of modern parameters.
6. To make an awareness among the patients in order to avoid for their recurrence of the disease.
7. To analysis of the trial medicine on basis of

    Biochemical analysis

    Pharmacological studies for

        Anti histamine

        Anti inflammatory

        Analgesic

        Acute toxicity
8. To find out whether there are any side effects/adverse effects produced by the trial drugs. ***OMA LEGIYAM*** (Internal drug) and THAGARAI LEBAM (External Drug)during the course of treatment.

REVIEW OF LITERATURES

SIDDHA ASPECTS

Definition

Based on the siddha literature, Kalanjagapadai is non infectious inflammatory disease of the skin characterized by well defined slightly raised dry, erythematous plaques with large adherent scales.

Kalanjaga padai

- It is one of the teadious diseases that affects the most of the people.
- About 2 – 3% of teh total population in predominantly by this disease.
- It may affect both sex. But predominantly affecting the females.
- It mostly affect in the age of 5-35 years.
- It mainly affect the skin and mucous membrane.

Vernacular name's (வேறுபெயர்கள்)

வெண்பருச் செதில்நோய், செதில் உதிர்நோய்

- *சித்த மருத்துவ சிறப்பு*

செம்பாட்டு தோலழற்சி, செதில் உதிர்வுப்படை, சாம்பல், படை, நுண்ணிய தொற்று செதில்படை.

- *அருங்கலைச் சொல் அகரமுதலி*

LITERATURE EVIDENCES

Siddha based definition

In siddha medicine the pancha bootham are elaborately described. According to siddha principle, Thole (skin) is a part of prithivi. Skin is the largest organ in the body.

In siddha system, skin disorders are brought under the clinical entity "Kuttam". Among the siddha literature "Yugi Muni vaithiya kaviyam, Thirumoolar vaithiyam, Thanvanthiri are some of the source of information on causes and 18 types of kuttam.

In the text book "Aathma Ratchamirtham ennum vaithya sarasangiragam" and "Thanvanthiri vaithiyam" the characteristic of kuttam are described clearly.

T.V. Sambasivam pillai has mentioned that in Tamil medicine 'Kuttam' means cutaneous affections and so it is a comprehensive term used various skin diseases.

In this book "Sorikuttam" has been compared to psoriasis.

(Sorikuttam – A kind of leprosy with diffuse papillary eruptions without ulceration on the entire surface of the body marked by intense itching and burning sensation followed by exfoliation of the epidermis or browny.

Scales – Eczematous psoriasis lepra Itchyosis

Among the 18 types of kuttam, thethru kuttam kajasarma kuttam and virpodaga kuttam resemble to that of kalanjgapadai.

Aetiology

According to siddha literature, aetiology have been described below.

In "Thirumoolar vaithiyam" the aetiology is given as follows

1. *வியாதியுள் மூவாறு விளங்கிய குட்டங்கேள்*
   சுயாதிக் கிரந்தி சுழல் மேகத்தா லாறும்
   பயாதி மண்ணுளப் பல வண்டினா லெட்டும்
   நியாதி புழுநாலாய் நின்றதிக் குட்டமே – திருமூலர்.

2. *"குட்டமுடன் திரேகமெல்லாம் பறக்கும்போது*
   குழிகுழியாய் கிருமியினாற் கொள்ளும் புள்ளி – 96 குருநாடி.

3. *பயில் மொழியீர் திரேகத்தில், கிருமிதானே*
   பரந்துதிரி குட்டம் போல் புள்ளி காணும்
   மயலதுவும் கிருமியுந்தா நடந்து புக்கில்
   மேனியது சரசரென வெடித்து புண்ணாகும் - 92 குருநாடி.

4. *"கிரந்தி சுழன் மேகத்தா லாறும்"*

   Six types of skin diseases are caused by venereal disease.

   "பயாதி மண்ணுளப் பல வண்டினா லெட்டும்"

   Eight types of skin disease are caused by insect bites.

   "நியாதி புழுநாலாய் நின்றதிக் குட்டமே

   Four types are caused by worms infestations.

IN THANVANTHIRI VAITHIYAM

"அறிவின்றி வியாதீதஞ் சேராகாரம் புசிக்கலாலும்
துறையின்றி தோடாத தொன்றை தொட்டவைப் - புசிக்கலாலும்
குறை கொண்ட நிசித்தமான குலமங்கை யடுக்கலாலும்
நிறைகொண்ட பெரியோர் தம்மை நித்தித்து பேசலாலும்
நிந்தித்துப் புறத்தியாற் சோம நிலைகெடப் பிரிக்கலாலும்
வந்தித்துப் பூருவா சொல்மந்திர பாவத்தாலுஞ்
சந்திக்கக் கற்மாதர் தங்களைக் கருதலாலும்
தொந்தித்த குட்டரோகந் தொடுக்கு மென்றுரைத்தார் முன்னோர்.

- *தன்வந்திரி வைத்திய ரோகம்*

Guru Naadi Nool describes Aetiology as follows

"கிருமியில் வந்த தோடம் பெருகவுண்டு
கேட்கி லதன் பிரிவுதனை கிரமமாகப்
பொருமி வரும் வாயுவெல்லாம் கிருமியாலே
புழுக்கடி போல் காணுமது கிருமியாலே
செருமி வரும் பவுத்திரங்கள் கிருமியாலே
தேகமதில் சொரிக்குட்டம் கிருமியாலே
துருமிவருந் சுரோணிதங் கிருமியாலே
சூட்சமுடன் கிரிசைப்பால் தொழில் செய்வீரே

- *குருநாடி*

- Intake of contaminated foods
- Scolding the elders
- Thinking of females
- Destiny (Kanma vinai)
- Intake of allergic foods

The text book of "Sirappu Maruthuvam" describes the following etiological factors of kalanjaga padai.

பரம்பரை நோயாக – of unknown aetiology and may be genetic

மூவரில் ஒருவருக்கு

Beta hemolytic streptococcal in guttate psoriasis.

Anti hypertensive drugs – Beta blockers

They are

1. Propanolol
2. Atenolol
3. chloroquine
4. Red oxide of copper
5. Polio vaccine

முதலிய மருந்துகள் குருக்களையும் படையையும் உண்டு பண்ணலாம் என்று கூறப்பட்டுள்ளது.

In Guru naadi nool says generally siddhars mentioned all the skin disease are caused by micro organism and macroorganism.

"கிருமி" – Micro organism and Macro organism

Kuttam is named as a common word of chronic skin lesion as for the siddha text books.

Agasthiar had mentioned kanmam is the main cause for kutta noi.

Kanma varalaru (Psycho social cause)

“பழவினையால் விடப் பூச்சி கடித்தாலும்
பாதகர்க்கு ஒருநாளும் தீர்வதில்லை
உள வினையாலூபிக் கொள்ள வந்த
உண்மைய தவறியாமல் மூர்க்கன் செய்வார்
களவினையுள் தீர்வதில்லை கடினமெத்த
கருணையுள்ள பூரணத்தில் கண்காட்சி
அளவினை நீ காணுமுன்னே அகலச் சொல்லு
அடையாளம் விரல் குறுகு பின்னால் கேளே
விரல் குறுகும் காஅல் நிமிறும் விம் போலேறும்
பாரான தேகமெல்லாந் தடித்து காணும்
பாதமெல்லாந் வெடித்து மிகப் புண்ணாய் காணும்
சரசமுடன் சொறி கரப்பான் பிணம் போல
தோணுள் சாந்தையாமே விந்தை கெடுத்தடி வீங்கும்
நா நல்கிலிந் நோய்க்கு மருந்தயராதே
நல்லோரை பீடிக்குங் குடங் கன்மமாமே”

- *அகத்தியர் பரிபூரணம் 400.*

“Thirumular has mentioned that the skin diseases are mentioned in three ways.

1. Venereal origin and other mega diseases.
2. Insect bites.
3. Infection and infestations.

“குட்டமது விட கரப்பான் விட நீர் சூலை
சுரோணிதத்தால் தாது கெட்டுத் தடிப்புண்டாகும்
மட்டறவே கிருமி சென்று மருவும் போது
வகையாய் கிருமியுட விடரூர் சென்று
குட்டமுடன் தேகமெல்லாம் பறக்கும் போது
குழிகுழியாய் கிருமியினீர்க் கொள்ளும் புள்ளி
தட்டறவே கிருமியுட ரூரால் வந்த
சகல குட்டம் விட கரப்பான் சாற்றலாமே

- *திருமூலர்*

Hereditary also plays a important role in breeding Kalanjaga padai which appear in generations affecting several siblings and in such families the condition tends to be severe and persistant.

The psychic tranquility of the individual depends upon the harmony of social movements.

The main factors behind the reasons are manifestations of stress which can be considered as precipitating factor.

In yugi chinthamani, among the eighteen types of skin disease three types seen to be varients of kalanjaga padai.

But no description is available in agasthiar kanmakandam, he mentions.

"சேர்ந்த குட்டமொடு குறைநோய்கள் வந்த
சேதிகேள் மலராத அரும்பு கொய்தல்
தாரித்த சீவ செந்து வதைகள் செய்தல்
தாய் தந்தை மனது நொந்து ரோகந்தானே"

- அகத்தியர் கன்மகாண்டம்

- Plucking buds
- Domestic violence
- Hurting the parents

In Manmurukiyam, he mentions

"இடம் பொழு துணவு தொழிலோடு பருவம்
ஏனமிவை வேறுபடுத லாலும்
நஞ்சூறல் நஞ்சு கூடியது பொறும்
பிணியுற லாறும் நிறம் பெயர்தடுமே"

- Change of place, food, work, climate and diurnal.
- Toxins by animal bites.

In agasthiyar vaithyam he mentions

குயல்வாய் குஷ்டம் சயங்குளம் நீரிழிவு சுரக்கிராணி
நீரடைப்பு பாண்டு மூல வாய்வு
கயல் வாயு வருங்கண்ணில் குத்தாய் கடிந் தசவாயு
கணவாக முன் செய்த உயிர் வினைதானே"

- அகத்தியர் வைத்தியம்

- Skin disease
- Tuberculosis
- Diabetes
- Fever
- Diarrhoea

These diseases occurs due to destiny

Other cause

- ❖ Excessive intake of allergic foods
- ❖ Change of climate
- ❖ Excessive intake of sweets, fried foods.
- ❖ Chocolates and milk

(B-lactone globulin – allergen in children)

- *Unavu maruthuvam*

In pararasa sekaram, He mentions

- ❖ Kanmam
- ❖ Stress
- ❖ Excessive sleep

As the causes

Finally concludes,

In our siddha system, siddhars not specified, the etiology for separate skin disease commonly they mentioned kanmam is one of the etiological factor. Kanmam denoteds the genetic transmission.

CLASSIFICATION

நோய் வகை

யூகிமுனி-18 வகை

புண்டரீகம்	சிகுரம்	மண்டலம்	கிடிபம்
விற்போடகம்	கரணம்	அபரிசம்	சர்மதலம்
பாமம்	கிருட்டிணம்	விசர்ச்சிகம்	தத்துரு
கஜசர்மம்	அவுதும்பரம்	விபாதிகம்	சித்துமா
சதாரு	சுவேதம்		

தன்வந்திரி வைத்தியரோகம் - 18 வகை

கபாலம்	சதரீக	தேத்துரு	பாம
சார்மேக	விசர்ச்சிக	புண்டரீக	சுகாநந்தி
உதும்பர	மண்டல	விற்போடக	வெண்
கிடிப	அருநோய்	சர்மதல	சித்துமா
அலச	விவாதிக		

T.V.சாம்பசிவம் பிள்ளை – 18 வகை

நீர்	செங்	விரல்குறை	விரண
வெண்	பொறி	சடை	கழி
சொறி	வரி	யானை	கிருமி
கருங்	எரி	திமிர்	ஆகு

பரராச சேகரம் - 18 வகை

வெண்	புண்	படர்	ஆணை
கருங்	சொறி	பஞ்சவர்ண	வறட்சி
செங்	புளி	வெடி	சற்ப
கரப்பான்	தேமல்	மூல	சுடலை
சிங்கவன்ன	முளை		

ஆத்மரட்சாமிர்தம் வைத்திய சாரசங்காரம் - 4 வகை

வெண்குட்டம் கருங்குட்டம்

செங்குட்டம் பெருவியாதி

IN THANVANTHIRI VAITHIYAM

வாத பித்த லேற்பனத்தின் வாரரோகந் தானனெனினும்
தீது குட்ட மெழுந்தீருங் குட்டம் பதினொன்று
மோதுங் குட்டம் பதினெட்டுடன் நொய வையினுற் பவமும்
பேதக் குணமும் வியாதின் முன் பிறக்குங் குணமுடைப்பேனே.

குட்ட நோய் வாத பித்த, சிலேத்மத்தினுள் வாதம் பித்தம் ஆகியவற்றால் உண்டானவை என்றும், 7 வகை குட்டங்கள் தீராது, 11 வகை குட்டங்கள் தீரும் என்றும் கூறப்பட்டுள்ளது.

அசாத்திய குட்டம் - 7 ன் பெயர்

சொல்லுங் குஷ்டங் ஏழுவகைபேர் சொல்லிற் கவாலஞ்சர்மீகம்
வெல்லு முதும்போ மேகிடிபம் விசர்ச்சி மண்டலாக்கிரமு
மல்லல் தருமீசி யகுவை யாகும் பெயரோ டியாகும்
வல்லவியாதிக் குணமதனை வகுத்து பாரி லுரைப்பேன்.

சாத்தியம் பதினொன்றின் (11) பெயர்

பூண்டதத் துருவினோடு சதரிசம் புண் டீகந்
தாண்டு விற்போம் பாமாவுடம் மைதலம் வெண்
கூண்டடு காக நந்தி சித்துமை யலச் குஷ்டம் குட்டம்
வேண்டிய விவாதியோடும் பதினொன்றும் விரித்து கானே

"ஆத்மரட்சாமிர்தம் வைத்திய சாரசங்கிரகம்" – 4 வகை

1. வெண்குட்டம்
2. செங்குட்டம்
3. கருங்குட்டம்
4. பெருவியாதி

திருமூலர் - 18 வகை

கிரந்தி மேகத்தால் வருபவை - 6
வண்டினால் - 8
புழுவால் - 4

Comparative studies

Among the eighteen types of skin diseases (kuttam) described by yugi, clinical features of thethiru kuttam, virpodaga kuttam, sadharu kuttam resemble those of kalanjaga padai.

தேத்துரு குட்டம்

"சர்மந்தான் சிவப்பாக வட்டணித்துச்
சலவை போல் வெளுக்குமே தினவுண்டாகும்.
வர்மந்தான் ரோகமது மிகவுண்டாகும்
மயிரெல்லாஞ் சுருண்டுமே உண்டையாகும்
கர்மந்தான் பித்த சேத்தும மிகுக்கும்
காயந்தான் கதித்துமே திமிருண்டாகும்
தர்மந்தான் சடமெல்லா மூதலாகும்
தாக்கான தேத்திருக் குஷ்டந்தானே".

- யூகி முனி வைத்திய சிந்தாமணி 800.

Annular erythematous lesions with whitish appearance, itching, oedema of the body and rolling of hairs like balls are the characteristic clinical features in the entity.

சதாரு குட்டம்

"எத்தான வெரிப்போடு தினவுமாகும்
எளிதான சேட்டுமவாதந் துற்பத்தி
பத்தான கட்டிப் புண்ணுமாகும்
பாம்பு தோல் போற்றிரைந்து பருத்துக் காணும்

வித்தான மூக்கோடு காது கன்னம்
மிகத்துடிப்பாஞ் சதாரு குஷ்டந்தானே".

-யூகிமுனி பெருநூல் 800.

விற்போடக குட்டம்

"புதுமையாய்ச் சரீரமெங்குத் தினவுண்டாகும்
பொருவெடியாய்த் திக்கெனத்தீக் கொழுந்து போல
மெதுமையாய் விட்டெரியும் நல்ல பாம்பின்
விஷப்படம் போலே தடித்து வெருப்பு மாகும்
சுதுமையாய் மிகச் சொரியுந் சிவப்புமாகும்
தூக்கமொடு சஞ்சலமும் தடிப்புண்டாகும்
கனத்தவிற் போடகமான குட்டந்தானே".

- யூகிமுனி பெருநூல் 800.

Characterized by elevated skin lesions with erythema and itching. Burning sensation will be present on and off. Usually these entities are associated with anxiety and despair.

கபால வாத கரப்பான்

"என்னவுரை வாதசிரத் தேயுங்க ரப்பனது
மின்னுமுகத் தான்வீங்கு மெய்குளிரும் வேதனையாம்
பின்னான சந்து டனே பிடரிமுத லாமிடங்கள்
தன்னாக நொந்துமிகத் தலைகனக்கு மென்றறியே"

- பரராச சேகரம் - சிரரோக நிதானம்.

பொழிப்புரை

மின்னும், முகம் வீங்கும், மெய்குளிரும், வேதனை உண்டாகும், சந்து, பிடரி முதலிய இடங்கள் நொந்து தலை கணக்கும்.

"அறியே நீரும் சலமும் பாய்ந் தனல்போ லெறிந்து குத்துண்டாம்.
சொறியும் பின்னர் மிகக்காய்த்து துஞ்சு நெய்போற் கழிந்தோடும்
பறியும் பொருக்குச் சாம்பரெனப் பரிய நாறும் புலனாற்றும்
குறியும் வாத சிரகரப்பான் கொண்டாரக் குற்ற குணமில்லையே

- பரராச சேகரம் - சிரரோக நிதானம்

பொழிப்புரை

மலம், சிறுநீர் செல்லும் போது அனல் போல் எரியும். அத்தோடு குத்தல் சொறியும் உண்டாகும். தோய்த்து வைத்த நெய் போல் சீழ் கசிந்தோடும். புலால் நாற்றம் வீசும். இதன் குறிகுணங்கள் காளாஞ்சகபடை போல் (Pastular psoriasis) காணப்படுகிறது.

கபால வெண்குட்டம்

"தோற்றுவெண் குட்டஞ் செய்யும் குணத்தினைச் சொல்லக் கேளாய்
நீற்றிடுங் கலம் போலச் சொறிந்திடு நீரும் பாயும்

ஏற்றமாய்ச் சாம்பல் வீழு மிழிபுலான் மினவே நாறும்

மாற்றமாய்க் கபால மேன்மேல் வறண்டுகா திரைச்ச லாமே''.

பொழிப்புரை

திருநீறு வைக்கும் மரக்கலம் போல் வெள்ளையாக இருக்கும். சொறியோடு நீரும் பாயும், சாம்பல் போல் விழும். இதன் குறிகுணங்கள் காளாஞ்சக படை போல் காணப்படுகிறது.

கபால் வெண்கரப்பான்

''வீறும் சிரத்தில் வெண்கரப்பான் குணத்தைக் கேளாய் மெல்லியலே

கூறும் புள்ளி நிறம் வெளுப்பாய்க் குறுநெற் செதில்போல் கொதித்து விழும்

ஊறு ரூருந் தினவுண்டா மோடே யொடுப்போற் கரகரக்கும்

மாறு போல வுடல்வற்றும் வாதை யிதுவு மசாத்தியமே''

- பரராச சேகரம் - சிரரோக ருதானம்.

பொழிப்புரை

வெண்கரப்பானில் புள்ளி போன்று. வெருப்புண்டாகும். குருநெற் போல் செதில்கள் கொதித்து விழும். உடல் ஊறி நீருடன் தினவுண்டாகும் மாறு போல் உடல் வற்றும். இதன் குறிகுணங்கள் காளாஞ்சகபடை போல் (Exfoliative dermatitis).

According to thethuru kuttam, virpodaga kuttam, satharu kuttam, The clinical features are resemble to Kalanjagapadai.

Clinical features

In the siddha text book sirappu maruthuvam, sirappu authored by Sri.Dr.R. Thiagaraja, Clinical features are described as,

- The skin lesions are red in colour with raised margins and white ivory or silvery rough thick scales on removing the scales pin point blood-stained spots occurs.
- The lesions vary in size either thin or thick layers.
- In children these lesions may be like water drops.
- In severe cases lesions occur in the face, scalp and sometimes all over the body.

IN A CHRONIC CASE

- The skin lesion occurs in the extensor aspect of forearm.
- In some cases these lesions appear over the palms and soles.
- In some cases these lesions appear all over the body.
- The lesions are coin shaped and there may be small pus formed lesions can be found.

- In obese women, the lesions may occur over navel inguinal region and axilla with discharge. Due to sweating, Itching may be associated.
- The borders of the lesions are not be demarcated clearly.
- On fourth of the patients have lesions over nails which are pink coloured and associated with ridges.

PSORIATIC ARTHROPATHY (Kalanjaga Vatham):

Kalanjaga padai is often associated with painful joints known as **"Kalanjaga vatham**". It may affect any joint. The most often affected joints are inter-phalangeal joints. The terminal interphalangeal joints are usually involved as opposed to the proximal interphalangeal joints in **"Uthira vatha suronitham"** which is identical with rheumatoid arthritis.

In these cases the affected fingers show nail changes. This condition is termed as **"Psoriatic Arthropathica".** The joints of fingers, ankles, knee and sacroiliac region are selectively affected. Those joints are swollen and painful with psoriatic lesions.

Radiological changes are characteristic and consist of osteoporosis followed by increased density, diminished joint space, and erosion of joint surfaces followed by eventual destruction of the ends of bones. Ultimately, the joints become deformed.

Yugi muni describes the clinical features of Kalanjaga vatham as follows;

"வாதமாங் கால் கையில் குரங்கிரண்டும்
வருத்து சந்து முறுக்கியே குடைந்து நொந்து
நாதமா நடை தானுந்தான் கொடாமல்
நலிந்துமே முடமாகிக் கரடு கட்டிச்
சேதமாந் சடந்தானு மிக வெளுத்துத்
தினவோடு சிரங்குமாய்ச் சேட்பமாகிக்
காதமா யருசி யொடு மயக்கமாகும்
கருதியே காளாஞ்சகமாம் வாதமாமே"

- செய்யுள் 259

"வாதமாங் கால் கையில் குரங்கிரண்டும்"

The joints of fingers, feet, ankles, knee and sacroiliac are selectively affected and these joints are painful.

"நாதமா நடை தானுந்தான் கொடாமல்
நலிந்துமே முடமாகிக் கரடு கட்டிச"

The deforming erosive arthritis targets finger and toe. Marked cartilage destruction and bony articulation results in loss of joint space and marked instability.

"சேதமாந் சடந்தானு மிக வெளுத்துத்
தினவோடு சிரங்குமாய்ச் சேட்பமாகிக்
காதமா யருசி யொடு மயக்கமாகும்
கருதியே காளாஞ்சகமாம் வாதமாமே"

The whole body becomes pale (anemic). Well-defined erythematous papules which are sharply demarcated appear on the skin. There is also loss of taste and giddiness.

SIDDHA PATHOLOGY:

BASED ON DHANVANDHRI VAIDHYA ROGAM

"முன்னிலை வாத பித்த சிலேத்மன மூன்று மங்கும்
பின்னிய தறுக்காயுள்ள நரம்பினிற் பிரவேசித்து
மன்னிய ரத்தம் தண்ணீர் மாங்கிஷந் தோல் கொடுத்தே
யன்னிய வன்னங் காணும் மாகையிற் குட்டமாமே"

- தன்வந்திரி வைத்திய ரோகம்

வாதம், பித்தம், கபம் மூன்றும் கேடடைந்து நரம்பில் சேர்ந்து இரத்தம், தண்ணீர், மாமிசம், தோல் இவற்றை கெடுத்து மாறுபாடு உண்டாக்கும்.

"குட்டரோகந்தான் வந்து குடிகொண்டாற் சரீரத்திலுள்ள
முட்டுறு வியர்வை யீரம் வற்றிய சூட்சஞ்சூட்சஞ்
திட்டமாய்க் கிருமியுண்டாய் தேகத்தில் மயிர்தோலெரிவு
சட்டமாம் நரம்பு தின்று சரீரத்திற் காணுமென்றே"

- தன்வந்திரி வைத்திய ரோகம்

- ❖ வியர்வையின்மை
- ❖ கிருமியுண்டாதல்
- ❖ தோல் எரிவு
- ❖ நரம்பு பாதிப்பு

ஆகியன குட்டரோகத்தை தொடர்ந்து வரும்.

Noi (Pini)

Definition :

Whenever alterations occur in three vital humours, disease or noi occurs.

"உடலுடன் பிணைந்த உயிர் அனுபவிக்கும்
இன்ப உணர்ச்சிக்கு மாறான உணர்ச்சியே பிணி"
"மிகினும் குறையினும் நோய் செய்யும் நூலோர்
வளி முதலா எண்ணிய மூன்று".

- குறள்

Therefore the deranged vatha, pitha kapha denotes disease. The diseases are reflected through the pulses in the three humours

Food variations:

"புளி துவர் விருஞ்சுங்கறி யார் பூரிக்கும் வாதம்
ஒளி யுவர் கைப் பேறில் பித்துச் சீறும் - கிளி மொழியே
கார்ப் பினிப்பு விஞ்சிற் கபம் விஞ்சுஞ் சட்டிரதச்
சேர புணர் நோயணுகாதே"

- ❖ Sour and astringent increases vatham
- ❖ Salt and bitter increases pitham
- ❖ Pungent and sweet increases kabam

Paruvakaalam (season):

The whole year is constituted by 6 seasons. They are

- ❖ Karkalam (August 16 to October 15)
- ❖ Koothir kaalam (October 16 to December 15th)
- ❖ Munpani kaalam (December 16 to February 15th)
- ❖ Pinpani kaalam (February 16 to April 15th)
- ❖ Elavenil kaalam (April 16 to June 15th)
- ❖ Mudhuvenil kaalam (June l6 to August 15th)

In each and every season routine changes will occur in the land, normal biological functions of individual, living things, plants, animals, human beings, which will modify normal physiology and make them susceptible to certain specific disease.

In my dissertation maximum cases occur in **munpani kaalam.**

Nilam (land):

It is divided into five types. They are

1. Kurinchi
2. Mullai
3. Marutham
4. Neithal
5. Palai

UYIR THATHUIYAL :

Knowledge of three uyir thathus, seven udal thathus and six tastes will be helpful to do detailed study on the disease.

For instance, the taste sweet is the combination of Mann and Neer. The kaba dosha also posses of same combination. So it is clear that excessive take of sweet will increase kaba kuttram. It can be balanced by the administration of "Thee" bootham containing taste. Similarly, administration of sour taste increases vatha kuttram that can be alleviated by opposite taste. The vatham further divided into ten.

The classification and its functions are,

A. VATHAM

1. Pranan (Uyir Kaal)

It is responsible for respiration and digestion.

2. Abanan(Keezhnokku Kaal)

It lies below the umbilicus responsible for the downward expulsion of stools, urine and constriction of anal sphincter.

3. Viyaanan (Paravu Kaal)

It is responsible for the action of all organs, sensation and absorption of food.

4. Uthaanan(Melonkku Kaal)

It is responsible for the absorption and distribution of food.

5. Samaanan (Nadu Kaal)

It is responsible for the balancing of the other vayus; absorption of nutrition's and water balance of the body.

6. Nagan

It is responsible for the movements for eyelids.

7. **Koorman**

It is responsible for the sight, closing of eyelids, yawning and closure of mouth.

8. Kirukaran

It is responsible for the secretion of mouth and nose, appetite, sneezing, cough.

9. Devathathan

It is responsible for aggravating of the emotional disturbances anger, lust frustration, etc.

10. Thananjayan

It escapes from the head on the third day after death.

Increased vaatham

Emaciation, desire to hot food, shivering, abdominal bloating, constipation, sleeplessness, giddiness and laziness.

Decreased vaatham

Pain all over the body, low voice, loss of attentiveness, unconsciousness and other diseases of increased kabam.

In the cases of Kalanjaga padai

Abanan	-	Habitual Constipation.
Viyaanan	-	Erythematous in the affected lesions of skin.
Samaanan	-	Due to other Vayu it is affected.
Kirakaran	-	Polydipsia, polyphagia, loss of appetite.
Devathathan	-	Insomia.

The above Vayus are commonly affected.

B. PITHAM

The pitha dosha is further divided into five as follows,

1. Anala Pitham (Aakku Anal)

Its action is characteristic of thee. This is responsible for digestion of food.

2. Ranjaga Pitham (Vanna Aeri)

It is responsible for the colour and contents of the blood.

3. Saathagam (Atralanki)

It lies in the heart. It is responsible for the action after thinking.

4. **Prasagam (Ollolithee**)

It is responsible for the complexion of skin.

5. Aalosagam (Nokkazhal)

It is responsible for the vision.

Increased Pitham

Yellowishness of eye, stools, urine and skin. Excessive thirst and appetite, burning sensation of body and sleeplessness.

Decreased Pitham

Hypothermia, loss of skin complexion and causes derangement of kabam.

In the cases of Kalanjaga padai

Anala pitham - Indigestion of food.

Ranjagam - Paleness of conjunctiva and tongue.

Sathagam - Difficulty to do the routine works properly and sluggishness.

Pirasagam - Dryness and roughness of skin.

The above pithams are commonly affected.

C KABAM

1. Avalambagam

It causes diseases of the respiratory system when it is affected thereby indirectly affecting the other lyyams.

2. Kilethagam

Appetite and digestion may not be normal when it is affected.

3. Pothagam

Derangement causes anorexia, distaste.

4. **Tharpakam**

Memory and perception of senses may be affected when this is deranged.

5. Sandhigam

Mobility of joints is affected due to drying up of the synovial fluid when sandhigam is abnormal.

Increased kabam

Increased salivation, inactiveness, heaviness of the body, impaired joint movement, dyspnoea, coughs and increased sleep.

Decreased kabam

Giddiness, flattening of chest increased sweating and palpitation. It is also important to know that the taste and activities which increase the Vaatham, pitham and kabam for the proper treatment of the diseases.

In the cases of Kalanjaga padai

- Kilethagam - loss of appitite was mainly affected.
- Tharpagam - Burning sensation of eyes was affected in few cases.
- Santhigam - Pain in joint affected in few cases

The above kabam are commonly affected.

SEVEN UDAL KATTUGAL

There are seven primary body tissues which constitute the entire human body and all the organs of the various systems.

1. **Saaram**

It is the end product of digestive process. It gives strength to the body and mind.

2. **Senneer**

The saram after absorption is converted into senneer. It is responsible for knowledge, strength and health complexion.

3. Oon

It gives figure and shape to the body. It is responsible for the, movement of the body.

4. Kozhuppu

It lubricates the organs and thus facilitates their function.

5. Enbu

Gives shape to the body helps locomotion and protects vital organs.

6. Moolai / machai

Present in the core of the bone and it gives strength maintains the normal condition of the bone.

7. Sukkilam /Suronitham

Responsible for reproduction

In the case of Kalanjaga padai out of seven udal kattukkal

Saaram	: Dryness, roughness, tiredness.
Senner	: Dryness, paleness of the skin.
Oon	: Weakness of sense organ.
Enbu	:Pain in the joints in chronic cases.

UDAL VANMAI (Body Immunity)

The Udal Vanmai is classified into 3 types. They are,

- lyarkai Vanmai
- Seyarkai Vanmai
- Kaala Vanmai

IYARKAI VAN MAI

Natural immunity of the body itself by birth.

SEYARKAI VANMAI

Improving the health by intake of nutritious food materials, activities and Medicines.

KAALA VANMAI

Development of immunity according to age and the environment.

When Udalvanmai is affected there may be a possibility of Kalanjaga Padai.

PINIYARI MURAIMAI

The method adopted to find out a disease in Siddha is known as P1N1YARI MURAIMAI. It is based on the following principles.

- ❖ Poriyaal Arindhal
- ❖ Pulanaal Therdhal
- ❖ Vinavudhal.

"Pori" is the five organs of perception namely Nose, Tongue, Eyes, Ears and Skin. "Pulan" is the five objects of senses Smell. Taste, vision auditory and sensation, respectively corresponding to "Pore". Poriyalarithai and Pulanal Therthal go hand in hand with the concept to examining the patients. "Pori" and "Pulan" with that of the "patient's .Pori" and" physicians Pulan".

"Vinathal" is a method of inquiring the details of either the patient's problem that made him to approach the physician from his own or his /her attendants who accompany them.

Along with, above mentioned principles is also carried out inspection in modern medicine. Besides, Thottuparthal (Palpation) and Thattiparthal (Percussion) are also used to diagnose a patient.

The prime method adopted to diagnose the disease is by means of "Envagai Thervugal" (Eight types of investigations). Envagai Thervugal a physician' instruments and can be understood by the following verses.

"நாடிப் பரிசம் நா நிறம் மொழி விழி

மலம் மூத்திரம் மிவை மருந்துவராயுதம்"

- தேரையர்

சித்த மருத்துவ நோய்நாடல் நோய் முதல் நாடல் திரட்டு பாகம் -1

Envagai Thervugal constitue

1. Naa
2. Niram
3. Mozhi

4. Vizhi
5. Sparism
6. Malam
7. Moothiram
8. Naadi

1. Naa (Tongue)

The colour, character and condition of the tongue change according to the changes of mukkutram.

In Kalanjaga padai no abnormality is seen in Naa.

2. Niram (Colour)

Signs of Vatha, Pitha and Kaba colours, mixed colour cyanosis, pallor, flusing or Yellowish discoloration can be studies by means of Niram.

In case of Kalanjaga padai white patches with silvery scales can be noticed at affected areas.

3. Mozhi (Speech)

Constitutes high or low-pitched voice, slurring and incoherent Speech, nasal or crying, hoarseness of voice etc.

In case of Kalanjaga padai, no abnormalities was ruled out in Mozhi.

4. Vizhi (Eye)

Along with sight, anatomical lesions are noted, Burning of the eyes, lacarymation, mutation, colour change of the eyes also noted. In case of Kalanjaga padai, no abnormalities was ruled out in vizhi.

5. Sparism (Palpation)

By palpation and inspection, the following information's were elicited. Temperature of the skin, whether uniformly hot or cold, thickness. Fissures soft/hard swelling, wrinkles, pigmentation of hairs etc.

In case of Kalanjaga padai well defined macules, papules, thickening, roughness, pain and white silvery scaling of skin can be noticed at affected area.

6. Malam (Stools)

Vatha type	-	Hard, rough, dry, scanty and black.
Pitha type	-	Loose stools, moderate in quantity. Yellowish red with fermenting odour.
Kaba type	-	Clay or white coloured stools, huge in quantity with slimy, mucous and frothy bubbles.

Thontha type - Faecal matter possesses some of the features of two doshas. In case of Kalanjaga padai constipation was reported in some cases.

7. M**oothiram (Urine)**

The Examination of urine is classified under 2 headings.

"அருந்து மாறிரதமும் அவிரோதமதாய்
அ.ங்கல் அலர்தல் அகாலவூன் தவிர்ந்தழற்
குற்றள வருந்தி உறங்கி வைகறை
ஆடிக் கலசத் தாவியே காதுபெய்
தொரு முகூர்த்தக் கலைகுட் படுநீரின்
நிறக்குறி நெய்க்குறி நிருமித்தல் கடனே."

- *சித்த மருத்துவாங்க சுருக்கம்*

Neerkuri - Niram, Edai, Manam, Nurai, Enjal Neikuri

Neerkuri

"வந்த நீர்க்கரி யெடை மணம் நுரை எஞ்சலென்
றைந்திய லுளவை யறைகுது முறையே".

- *சித்த மருத்துவாங்க சுருக்கம்*

- **Niram** indicates the colour of the urine voided.
- **Edai** indicates the specific gravities of urine.
- **Manam** indicated the smell of the urine voided.
- **Nurai** indicates the frothy nature of the urine voided.
- **Enjal** indicates the quantity (increases or decreased) of urine voided.

In addition, frequency of Micturation, abnormal constituents, such as sugar, protein, presence of blood, pus, renal crystals also to be noted.

In Kalanjaga padai patient straw coloured urine is noted. Poly urea can be noted in some cases.

(b) Neikuri:

The specialty of neikuri is stated in the following verse:

"ஐக்குறி கொடுவட வானிழ லமர்ந்தோர்
கைக்குறி தெரிந்த நங் கடவுளைத் துதித்தே
மெய்குறி நிறந்தொனி விழி நாவிருமலம்
கைக்குறி முழவதா உங்கற்றார் தம்மினும்
பொய்க்குறி மெய்குறி புகலுமெ வர்க்கும்"

- *சித்த மருத்துவ நோய் நாடல் நோய் முதனாடல்*

திரட்டு

The collected specimen as said above is to be analysed by following method. The specimen is kept open in a glass dish or china clay container. It is to be examined under direct sunlight, without shaking of the vessel. Then add one drop of gingelly oil at a distance of 1/2" or 3/4" height observe keenly the direction it spreads with in few minutes, and conclude the diagnosis.

The character of Vatha Neer

"அரவெண் நீண்டி ன.ஃதே வாதம்"

When the drop of oil spreads like a snake, it indicates Vatha Neer.

The Character of Pitha Neer

"ஆழிபோற் பரவின் அ.ஃதே பித்தம்"

When the drop of oil spreads like a ring, it indicates Pitha Neer.

The Character of Kaba Neer

"முத்தொத்து நிற்கின் மொழிவ தென் கபமே"

When the drop of oil remains as that of a pearl, it indicates Kaba Neer.

The Character of Thontha Neer

"அரவில் ஆழியும் ஆழியில் அரவும்

அரவில் முத்தும் ஆழியில் முத்தும்"

- சித்த மருத்துவ நோய் நாடல் நோய் முதனாடல் திரட்டு

Thontha Neer

Ring in the Snake Snake in the ring Pearl in the snake Pearl in the ring

8. Naadi (pulse):

Naadi is responsible for the existence of life and can be felt on inch below the wrist on the Radial side by means of palpation with the tips of index, middle and ring fingers corresponding to vatham, pitham and kabam.

These humors vatham, pitham and kabam exist in the ratio 1: ½ : ¼ normally the arrangement in this ratio leads to various disease entities.

In the **Kalanjaga vatham** he following types of naadi were observed. They are,

i. Vatha kabam

ii. Vatha Pitham

LINE OF TREATMENT (NOI NEEKAM) The aim of noi neekam is based on

1. To bring the three doshas in equilibrium.

2. Treatment of the disease accordingly the signs and symptoms.
3. Pathiyam

Siddha system of medicine is based on the mukkutra theory and hence the treatment is mainly aimed to bring down the three doshas to its equilibrium state and there by restoring the physiological consitions of several thathus.

"விரேசணத்தால் வாதம் தாழும்
வமனத்தால் பித்தம் தாழும்
நசிய அஞ்சணத்தால் கபம் தாழும்".

- சித்த மருத்துவாங்கச் சுருக்கம் ப.எண்.662

- ❖ Vatha disease can be brought down by Viresanam.
- ❖ Pitha disease can be brought down by Vamanam.
- ❖ Kaba disease can be brought down by Anjanam.

"வாதமலாது மேனிகெடாது"

- தேரன் சேகரப்பா

சித்த மருத்துவ நோய்நாடல் நோய்முதல் நாடல் திரட்டு பாகம் -1 ப.எண்.363

Hence, Kalanjaga padai occurs due to the vitiation of vatham it can be set right by giving viresanam.

Treatment of disease :

In addition to this following medications are practiced in the Siddha system .

- ❖ Aha maruthugal (Internal medicines)
- ❖ Pura maranthugal (external medicines)
- ❖ Restriction regarding food habits and routine day to day life style.
- ❖ Sirappu Maruthuvam - a special feature of Siddha medicine like Pranayamam, Yoga.

After the thiridoshas are brought down to its equilibrium state, the signs and symptoms of disease should be treated properly. For the study.

AHA MARUTHUVAM

- ❖ Oma legiyam

PURA MARUTHUVAM

- ❖ THAGARAI LEBAM .

Restriction Regarding food and Habits

1. Avoid bitter guard, guava, egg, fish, chicken
2. Avoid alcohol, smoking etc.,

3. Obese must be restricted.
4. Since it is a chronic and not a life threatening disease, it should not be loaded with heavy drags.
5. The meditations should calm the mind just free from stress and strain
6. The patches should be washed with lukewarm water, to remove the scales everyday early morning. After the bath, external applications are to be applied there after.
7. Avoid allergic food items.

"பெருஞ் சோள மிறுங்கும் பெரும் கம்பு
வரகு காருடன் வாழையின் காயொடு
உரை கொள் பாகற் கெளிற்று மீன் உண்டிடில்
விரிவதாய் கரப்பானு மிகுந்ததே"

- *பதார்த்த குண சிந்தாமணி*

SPECIAL NON DRUG THERAPEUTICS

Several special medicaments of non drug therapeutic like Yoga, Pranayamam, Asanas, Kalpa medicines are employed in Siddha systems.

These are employed during diseased state and for the prevention of diseases during healthy days. In Kalanjaga padai, patients are also advised to follow Pranayamam, Yoga and Asanas, in order to avoid the remissions and exacerbation of this disease.

PRANAYAMAM

It is a form of Kayakalpa method. By practicing this one can prevent any disease. This is explained in the following verse,

PRANAYAMA

YOGA

Yoga is maintained by the body in a particular posture for a particular period of time. This is totally different from the ordinary exercise. Yoga vitalises, both physical body and the mental set-up unlike exercise which tones only the muscles. The common benefits are,

- ❖ It tones the internal organs.
- ❖ It prevents obesity and disease.
- ❖ It maintains normal circulation to all the organs of the body.
- ❖ It is very safeguard for all the vital organs.
- ❖ It avoids laziness, enhances pure mind and cleverness and memory power. There will be no problems like psychosomotive disturbances if practised daily.

ASANAS

Retarding skin disease the following Asanas can be advised

I. - PADMASANA (LOTUS POSE)

TECHNIQUE :

1. Keep the right foot on the left thigh
2. Start bouncing the right knee. If the bouncing knee easily touches the floor, then bend the left knee, take hold of the left foot with both hands, gently glide it over the crossed right leg and place it on the right thigh.
3. This will give symmetrical placement of the Padmasana legs and you are in lotus position.
4. The hands should be kept on the knees with palms open, and the thumb and second finger of each hand should touch forming a letter O.

Benefits:

1. This is an extremely good pose for meditation and concentration.
2. It has a calming effect on the mind and the nerves.
3. This pose keeps the spine erect. Helps to keep the joints in flexible condition.
4. Helps to develop a good posture.
5. It allows the body to be held completely steady for long periods of time.
6. It holds the trank and head like a pillar with the legs as the firm foundation.

2. சர்வாங்காசனம் - SARVANGASANA (THE SHOULDER STAND)

TECHNIQUE

1. Lie flat on your back. Inhale deeply while raising your legs and spine until the toes point to the ceiling.
2. The body rests on the shoulders and the back of the neck. The body is supported by the hands, which are placed on the center of the spine between the waist and the shoulder blades. Keep your spine and legs straight.
3. 3.Breathe slowly and deeply with the abdomen and concentrate on the thyroid gland. On a male, the thyroid gland is located behind the Adams apple. For women, it is located in the same area which is a few inches above the sternal notch (hollow of the neck where the neck joins the rest of the body.) or approximately half way up the neck from the sternal notch. Stay in this position for about two minutes.
4. To come out of this posture, just bend your knees, curve your back and slowly return to lying on the floor while exhaling. First bend your knees, put the palms on the floor, then curving the spine, gradually unfold it the way one unrolls a caipet. When your entire back touches the floor, straighten the knees, take a deep breath and slowly lower your legs to the ground while breathing out.
5. If you wish, you may go straight into the next posture (the 'reverse posture') instead of lying down.

Benefits

1. The main benefit of the shoulder stand is to get the thyroid gland working at peak efficiency. It's the thyroid gland which is mainly responsible for your correct weight and youthful appearance.
2. The shoulder stand also regulates the sex glands.
3. It vitalizes the nerves, purifies the blood and promotes good circulation, strengthens the lower organs and helps them to stay in place.
4. It gives a healthy stretch to the neck muscles.
5. It is beneficial for people suffering from poor circulation, constipation, indigestion, asthma and reduced virility.
6. This pose is especially recommended for women after childbirth and for those, from painful menstruation, other female disorders, and seminal weakness.
7. The sanskrit name for this posture sarvangasana means 'all the body'

3. சவாசனம் - The Corpse Posture *(Shava-asana)*

Instruction

1. Lie flat on your back with your legs together but not touching, and your arms
2. close to the body with the palms facing up.
3. 2. Keep your eyes gently closed with the facial muscles relaxed and breathe deeply and slowly through the nostrils.
4. Starling at the top of the head and working your way down to the feet, bring to each part of your body, consciously relaxing it before proceeding on to the next.
5. Remain in the shava-asana for between 3 and 5 minutes or longer. If you become sleepy while in the shava-asana begin to breathe a bit faster and deeper.

Comments

1. The goal of the shava-asana is for the body and minds to be perfectly still and relaxed. Not only should the body be motionless and at ease, but the mind as well should be quiet, like the surface of a still lake.
2. It goes without saying that the *shava-asana* will take some time to perfect. It will find the simple exercise of focusing your attention on each part of your body and consciously directing the breath there to be a great help with this posture.
3. There are two common obstacles that can prevent you from fully benefiting from this posture: sleepiness and a restless mind. If our mind is restless or wondering focus your attention on all of the bodily sensations you're experiencing. Bring your mind to the sensation of the floor beneath you or on the rhythm of your breath.
4. While practicing your *Yoga-asana* routine you should always begin and end each session with the *shava-asana.*

Durations/Repetitions:

1. We recommend that you begin your period of *yoga-asana* practice with at least 3-5 minutes of *shava-asana.*
2. Return to it periodically thought your posture session to relax and rejuvenate the body/mind and then conclude your session with at least 3-5 minutes more.

Benefits

1. This asana relaxes the whole psycho-physiological system.
2. It should ideally be practiced before sleep; before, during and after asana practice,

particularly after dynamic exercises such as surya namaskara.

3. When the practitioner feels physically and mentally tired. It develops body awareness.
4. When the body is completely relaxed, awareness of the mind increases, developing pratyahara.

4.திரிகோசனம் - TRIKONASANA (TRIANGLE POSE)

1. Stand erect with the feet about a meter apart. Turn the right foot to the right side.
2. Stretch the arms sideways and raise them to shoulder level so that they are in one straight line.
3. Bend to the right, taking care not to bring the body forward. Simultaneously bend the right knee slightly.4. Place the right hand on the right foot, keeping the two arms in line with each other.

Turn the left palm forward. Look up at the left hand in the final position.

5. Return to the upright position with the arms in a straight line.
6. Repeat on the opposite side, bending the left knee slightly. This completes one round.
7. Practice 5 rounds.

Respiration:

1. Inhale while raising the arms. Exhale while bending. Hold the breath for a few seconds in the final position.
3. In hale while raising the body to the vertical position.

ASANAS

PADMASANAM

SARVANGASANAM

SHAVASANAM

TRIKONASANAM

Benefits:

1 . To tone of the entire body.
2. It affects the muscles on the sides of the trunk, the waist and the back of the legs.
3. It stimulates the nervous system and alleviates nervous depression.
4. It improves digestion, stimulating the appetite, activating intestinal peristalsis and alleviating constipation.
5. It also strengthens the pelvic area and tones the reproductive organs.
6. Regular practice will help reduce waistline fat.

PATHIYAM

Disease mainly occur due to wrong diet habits. Siddhars stressed this in every aspect of treatment and prevention from further occurrences. This view is well understood in this verse.

"மருந்தென வேண்டாவாம் யாக்கைக்கு
அருந்தியதுயற்றது போற்றி யுணின்"

- குறள்

During diseased states, diet restrictions or pathiyam are strictly to be followed. These are to be administered to normalize the deranged doshas and for the good manifestation of given medicines to be more effective. I his is given in the verse,

"பத்தியயத்தினாலே பலன் உண்டாகும் மருந்து
பத்தியங்கள் போனால் பலன் போகும் - பத்தியத்தில்
பத்தியமேவெற்றி தரும் பண்டிதர்க்கு – ஆதலினால்
பத்தியமே உத்தியென்று பார்"

- தேரையர் வெண்பா.

So it is very essential to and here pathiyam strictly for the early cure of the

DIET

Food habits that reduce the vatham, pitham, kabam to the normal level has to be taken. Patients are strictly convinced to avoid all the non-vegetarian items except goat's flesh. Avoidance of the following food items were also strictly advised.

Agathi keerai	-	Leaves of sesbania grandiflora.
Seeni avaraikai	-	Cynampsis psoratoides.
Pagarkai	-	Bitter guard.
Poosanikai	-	Great pumpkin.
Perum payaru	-	Cow - gram.

Solam	-	Maize.
Kanam	-	Horsegram.
Motchai	-	Flac bean.
Elumicham pazham	-	Lemon (citrus medica)
Rich protein foods	-	Consists of histidine.

The rich proteins consists of glucogenic amino acids. This amino acids on metabolism undergoes decarboxylation to yield histamine in the presence of an enzyme histidine decarboxylase.

Histamines acts on skin and causes urticaria and anaphylactic reactions. So in order avoid skin complications, avoid dietary foods which are rich in highly biological value proteins.

Habits :

Patients avoid smoking, alcohol etc., advised to have timely diet.

ANUPANAM IN SIDDHA SYSTEM:

"அனுபானத்தாலே யவிழ்தம் பலிக்கும்
இனிதான சுக்கு கன்னல் இஞ்சி – பினுமுதகால்
கோமேயம் பால் முலைப்பால் கோநெய் தேன் வெற்றிலை நீர்
ஆமிதையாராய்ந்து செய்யலாம்".

- தேரையர் வெண்பா

Siddha system considers anupanam as an important and sometimes more important than the medicine itself, without a knowledge of the importance of anupanam, success in the treatment is not possible. Oma legiyam is given with milk two times a day.

காய கற்பம்

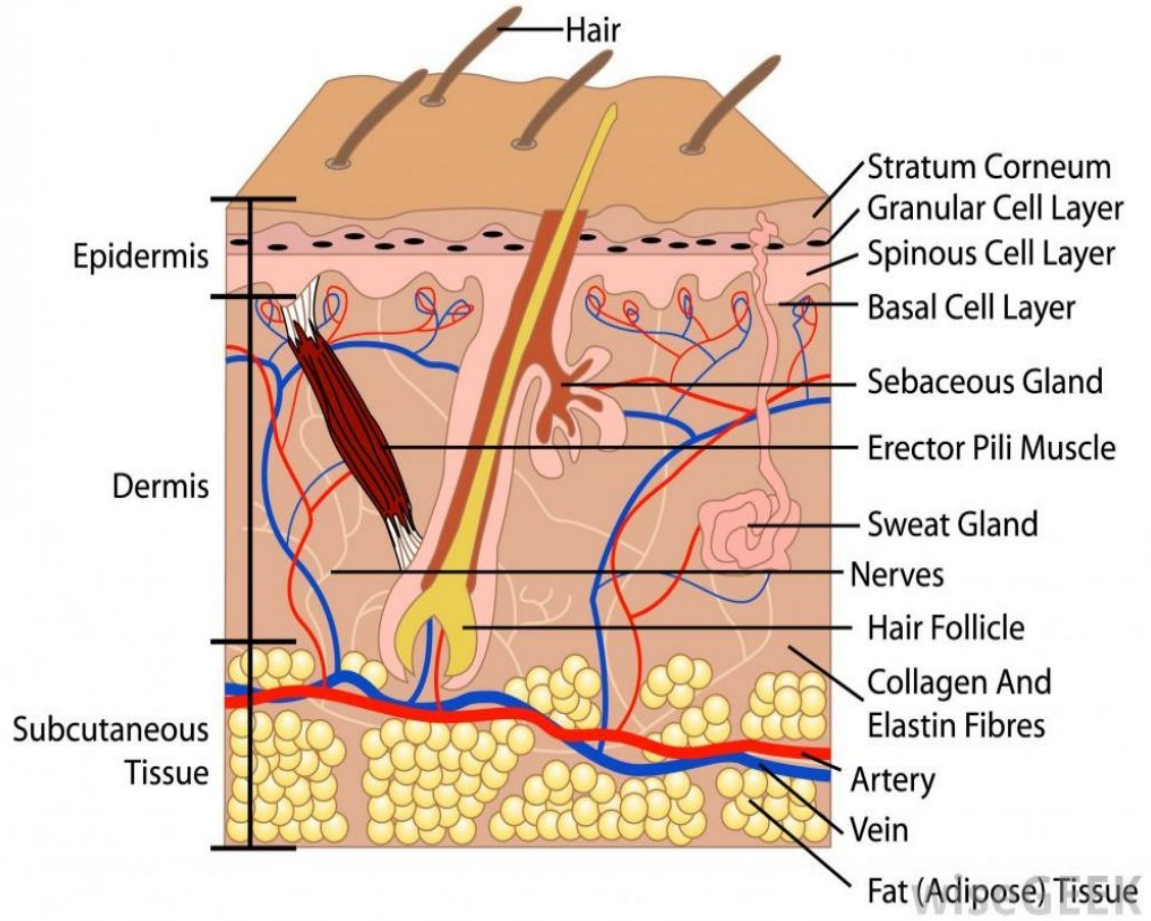
Advised to take (Rejuvenation) "காயகல்பம்" to render the body invulnerable.

All patients were also advised to follow siddhers preventive measures which would give immortality of body and soul, quoted in "Pathartha Guna Chinthamani" as follows.

"தின்ன மிரண்டுள்ள சிக்க வடக்காமற்
பேண்ணின்பா லொன்றைப் பெருக்காமல் - உண்ணுங்கால்
நீர்சுருக்கி மோர் பெருக்கி, நெய்யுரக்கி யுண்பவர்தம்
பேருரைக்கிற் போமே பிணி

- பதார்த்த குண சிந்தாமணி

STRUCTURE OF THE SKIN



MODERN ASPECTS

SKIN ANATOMY

The skin is the largest organ of the body, with a total area of about 2 square metres.

It serves as a protective barrier that prevents internal tissues from exposure to trauma, ultraviolet (UV) radiation, temperature extremes, toxins, and bacteria.

Other important functions include sensory perception, immunologic surveillance, thermoregulation, and control of insensible fluid loss.

Skin has three layers:

Epidermis

The epidermis, the outermost layer of skin, provides a waterproof barrier and creates our skin tone. The epidermis is derived primarily from surface ectoderm but is colonized by pigment-containing melanocytes of neural crest origin, antigen-processing Langerhans cells of bone marrow origin, and pressure-sensing Merkel cells of neural crest origin. The epidermis contains no blood vessels.

The epidermis is itself made up of several layers. From outer to innermost, they are the:

- Stratum corneum
- Stratum lucidum
- Stratum granulosum
- Stratum spinosum
- Stratum basale

Stratum basale

The deepest layer of the epidermis is the *stratum basale.* It consists of a single layer of columnar epithelium which is adhered to the basal lamina. Nutrition is supplied from the underlying capillaries of the dermis. Migration of cells towards the surface begins here.

Stratum spinosum

Above the stratum basale is the *stratum spinosum.* Spinous cells are large polygonal cells with prominent desmosomal intercellular filaments, which act like bridges between the cells. When cells move into this layer, they shrink and move apart. Keratinisation begins in the stratum spinosum and continues in the stratum granulosum.

Stratum Granulosum

External to the stratum spinosum, lies the *stratum granulosum.* Granular cells are thin, flattened keratinocytes with variably prominent keratohyaline granules. At its outer surface, the stratum granulosum secretes oragnelles called lamellar bodies, which are composed of lipid and enzymes which fuse with the plasma membrane and help to form the water concentration gradient that leads to transepidermal water loss.

Stratum Corneum

The outer layer, *stratum corneum,* consists of anucleate, thin cells filled with keratin filaments and proteins that form a cell envelope resistant to solvents and enzymes; there is also a permeability barrier to water and ions. For the stratum corneum to maintain a constant thickness, there is a constant turnover of exfoliated corneocytes, being replaced by new corneocytes. Enzymes in the lamellar bodies from the stratum granulosum help to break down the intercellular lipid 'glue' that holds the cells in place and there is also some degradation of desmosomes.

Stratum Lucidum

The stratum lucidum layer is only present in thick skin where it helps reduce friction and shear forces between the stratum corneum and stratum granulosum.

Dermis

The dermis is derived primarily from mesoderm. The dermis consists of dense fibrous tissue composed of collagen type I, III and V, with some elastin fibres and provides a supporting mattress for the carriage of blood vessels, lymphatic vessels, nerves and sensory receptors, hair follicles, sebaceous and sweat glands, with circulating white cells.

Hypodermis

The deeper subcutaneous tissue (hypodermis) is made of fat and connective tissue.

Other components of the skin include:

Blood vessels

To keep our body a constant temperature, blood vessels in the skin dilate in response to heat or constrict in response to cold.

Sebaceous glands

The sebaceous glands secrete sebum, an oily substance that helps keep skin from drying out. Most of the glands are located in the base of hair follicles. Acne starts when the tiny hair follicles become plugged with these oily secretions.

Sweat glands

When our body gets hot or is under stress, these glands produce sweat, which to cool . Sweat glands are located all over the body but are especially "hundant in our palms, soles, forehead, and underarms.

Hair follicle

Every hair on our body grows from a live follicle with roots in the fatty layer billed subcutaneous tissue.

Collagen

Collagen is the most abundant protein in the skin, making up 75% of your skin. This is also our fountain of youth as it's responsible for warding off wrinkles and fine lines. Over time, environmental factors and ageing diminish our body's ability to produce collagen.

Elastin

This protein is found with collagen in the dermis and is responsible for giving structure

to your skin and organs.

Keratin

Keratin is the strongest protein in our skin. It's also dominant in our hair and nails.

Colour

The skin's colour is created by special cells called melanocytes, which produce the pigment melanin. Melanocytes are located in the epidermis.

PHYSIOLOGY

The skin performs a multitude of functions. They are ;

I. PROTECTIVE FUNCTION:

In human beings, the tough horny and keratinized waterproof epidermis, and appendages like hair and nails, provides a sufficiently strong barrier against injury, penetration of harmful substances and bacterial invasion; they also protect the underlying structures.

Another protective function of skin is to protect against sunlight by synthesis of melanin a pigment.

There is about 70% of water in the epidermis and about 15% in the horny layer. The horny layer becomes hard and brittle when the water content falls below 10%.

2. SENSE ORGAN

The skin is richly supplied with nerves and various types of specialized sense organ which provide information regarding environmental changes the body can adjust it accordingly.

3. SECRETION AND EXCRETION:

The skin posses various types of glands which pour secretion on the surface. The more important ones are the sweat and the sebaceous glands. The eccrine glands which are scattered all over the body surface secrete a thin transperant, watery, fluid, known as true sweat; while apocrine gland secrete a thicker milky and odoriferous solution. The secretory cells get hypertrophied during the premenstrual period and regress during the menstrual phase.

SEWAT COMPOSITION:

1. 1 -2% Solids (organic 0.4 % and inorganic 0.8%)
2. 98.8% water

I important substances excreted in it are sodium chloride, sodium bicarbonate, keratin and a small amount of urea. Water and chloride are by the most important consituent.

THERMAL SWEATING

Direct studies on the amount of sweat secreted environments on the surface of the human skin shows that sweat glands react very strongly to changes in the atmospheric pressure known as thermal sweating.

The sebaceous glands of the skin secrete sebum which is composed of fatty acids, cholesterol, alcohol etc., Fatty acid have mild fungi static activity. The sebum act as a lubricant for the drying effects of the atmosphere.

4. BODY HEAT REGULATION

The very important activity of warm blooded species like human being is independent of the temperature condition of the external environments It is achieved by the existence of a heat regulating mechanisms which adjusts the heat lost to the heat generated in it.

The skin plays vital role in the regulation of heat loss.. 90% of the heat from the body is lost through the skin.

The heat loss through the skin is regulated by various physiological mechanisms which include

(1) The reaction of the cutaneous vessels ,

(2) Perspiration and

(3) The reaction of the smooth muscle fibre of the skin.

The temperature of the skin depends upon the amount of blood flowing through the vessels.

5. STORAGE FUNCTION OF SKIN:

The dermis is conjunction with the hypodermis has a considerable capacity for Coring various materials, of these the best known are fat and blood.

a) Fat is laid down in fat cells as a permanent store of subcutaneous adipose tissue. It provide the reserve store of body energy. It prevent heat loss, and is good shock absorber.

b) Blood is stored in the rich subpapillary plexus. A rough estimate of its capacity in a normal adult comes to near about one litre.

c) The skin is also good storehouse of ergosterol (vitamin D)

d) The other type of storage which occur in the skin is what has been called by Cannon storage by inundation.Thus in fact, is the storage of extra-cellular fluid in the interstitial space.

Certain substances like glucose and chloride may also be stored in the skin temporarily when their level in the blood register a sudden rise.

6.ABSORPTION:

It is also almost an well-known fact that the intact skin is impervious to watery solution of salts or other substances. Skin can absorb substances dissolved in fatty solvents like vitamins and hormones.

7.GASEOUS EXCHANGE:

A small amount of gaseous exchange occurs through the skin. In man small amount of CO_2 exchanged through the skin is negliable compared to the amount exhaled from the lungs.

PSORIASIS

Definition:

It is characterized by sharply demarcated, scaly, red, coin sized lesion most often on the elbows, knees, scalp, hands and feet, (ref: World Health Organisation)

Aetiology:

- A family history of psoriasis is found in 30% patients
- The genetic transmission is complex and it is as considered multifactorial

genetic disease that requires both polygenic & environmental factor for its clinical expression.

- The histo compatibility antigens are regarded as the most important genetic markers for Psoriasis.
- HLA-CW6 correlated with Psoriasis.
- The presence of HLA-Brl7 has been correlated with a higher familial incidence, more extensive skin involvement and advanced clinical disease and it is reported in those with generalized pustular Psoriasis.
- HLA-B13 have been correlated with reversible disease and often give a history of antecedent streptococed infection.
- HLA-BW 38 correlated with Psoriasis arthritis.

Triggering factors:

- Trauma, infection, endocrine factors climate & emotional stress.
- Infection with Beta-hemolytic streptococci triggers guttate psoriasis
- Drags $\rightarrow$ chloroquine, carbonate, steroids, Iodides, nystatin, progasteone & β blockers also precipitate psoriasis.

Pathogenesis

Pathogenic mechanisms in psoriasis

Defective epidermal cell surface	Receptors
↓	↓
Decrease in Camp	Increased production of arachidonic acid
↓	↓
Increase in protein	Increased activation of LTB4 (chemotactic factor)
↓	↓
Kinase and polyamine	Neutrophils emerge from the tip of capilary loop at the apex of the dermal papila
↓	↓
Exert a growth factor effect	Aggravated neutrophills in the stratum corneum (Mono micro abscess)

Clinical features:

- Psoriasis is characterized by- well circumscribed sharply demarcated erythematous papules & plaques.
- The plaques are covered by dry, brittle silvery or grayish white, loosely adherent micaceous scales. The scales are disposed in lamellar fashion.
- On grattage, white silvery scales come off in layers.
- By removing this layer a characteristic coherance is observed, as if we scratches on a wax, **Candle (candle grease sign).**
- On further grattage, a thin feel like membrane, **Berkley's membrane,** will present
- By removing this, a wet surface with pin point bleeding is exposed called **Auspitz sign.**
- The localization of the lesions over the extensor surface has been attributed to Koebner's phenomenon, the affinity to replicate the lesion over the site of trauma
- Nail involvement - 30% of cases.
- Psoriatic arthritis-nail involvement - 85 to 90%.

Nail Changes:

- Thick, brittle, lustureless nails.
- Pitting of the nail plate. Due to the nvolvement of proximal part of the matrix.
- The nail pits correspond to the small parakeratotic foci in the matrix..
- Sub lingual hyperkeratosis Present under the free edge of the nail.lt is macromorphological equivalent of the parakeratosis.

TYPES OF PSORIASIS:,

1. Based on Morphological types

- Chronic stable plaque psoriasis (Psoriasis vulgaris)
- Guttate psoriasis
- Pustular psoriasis
- Erythrodermic psoriasis
- Rupioid, elephatine and ostraceous psoriasis

2. Based on site of involvement

- Scalp psoriasis
- Flexural (Inverse) Psoriasis
- Nail psoriasis
- Palmoplantar psoriasis

- ❖ Genital psoriasis
- ❖ Psoriatic arthritis

3.Atypical forms of psoriasis

- ❖ Linear and zonal lesions
- ❖ Fallicular
- ❖ Photosensitive
- ❖ Seborrheic psoriasis
- ❖ Annular psoriasis
- ❖ Circinate psoriasis

1. Plaque psoriasis, also known as psoriasis vulgaris or chronic stationary psoriasis or plaque-like psoriasis.

It is the most common form and affects 85%-90% of people with psoriasis.

Plaque psoriasis typically appears as raised areas of inflamed skin covered with Silvery-white scaly skin. These areas are called plaques

Most commonly affected areas are the back of the forearms, shins, around the belly button, and scalp.

2. Guttate Psoriasis

Guttate Psoriasis is characterized by numerous small, scaly, red or pink, deoplet – like lesions (papules).

These numerous spots of psorias's appear over large areas of the body. Primarily the trunk but also the limbs and scalp.

Guttate psoriasis is often triggered by a streptococcal infection, typically streptococcal pharyngitis.

3. Erytherodermic psoriasis or Psoriatic erythroderma:

It involves widespread inflammation and exfoliation of the skin over most of the body surface.

It may be accompanied by severe itching, swelling and pain. It is often the result of an exacerbation of unstable plaque psoriasis, particularly following abrupt withdrawal of systemic glucocorticoids.

This form of psoriasis can be fatal as the extreme inflammation and exfoliation disrupt the body's ability to regulate temperature and perform barrier functions

Fingernails and toe nails are affected in most people at some point in time. This may include pits in the nails or changes in color.

TYPES OF PSORIASIS

Erythrodermic Psoriasis

Nail Pitting Psoriasis

Guttate Psoriasis

Inverse Psoriasis

Pustular Psoriasis

Psoriatic Arthropathy

Pustular psoriasis

- It appears as raised bumps filled with noninfectious pus.
- The skin under and surrounding the pustules is red and tender.
- It can be localized, commonly to the hands and feet (palmoplantar pustulosis).
- Pustules erupting from red, tender, scaly skin found on the palms of the hands and the soles of the feet.
- Generalized pustular psoriasis (pustular psoriasis of von Zumbusch), also known as impetigo.

Herpetiformis during pregnancy.

It is a rare and severe form of psoriasis. The development of generalized pustular psoriasis is often caused by an infection, abrupt withdrawal of topical corticosteroid treatment, pregnancy, hypocalcemia, medications, or following an irritating topical treatment for plaque psoriasis.

This form of psoriasis is characterized by an acute onset of numerous pustules on top of tender red skin. This skin eruption is often accompanied by a fever, muscle aches, nausea, and an elevated white blood cell count.

Annular pustular psoriasis (APP), a rare form of generalized pustular psoriasis, is the most common type seen during childhood period.

APP tends to occur in women more frequently than in men, and is usually less severe than other forms of generalized pustular psoriasis such as impetigo herpetiformis.

This form of psoriasis is characterized by ring-shaped plaques with pustules around the edges and yellow crusting.

APP mostly affects the torso, neck, arms, and legs.

Inverse psoriasis

It also known as flexural psoriasis.

It appears as smooth, inflamed patches of skin.

The patches frequently affect skin folds, particularly around the genitals (between the thigh and groin), the armpits, overweight abdomen intergluteal cleft,the inframammary fold.

Heat, trauma, and infection are thought to play a role in the development of this atypical form of psoriasis.

Napkin psoriasis is a subtype of psoriasis common in infants characterized by red papules with silver scale in the diaper area that may extend to the torso or limbs.

Guttate psoriasis is features are numerous small, scaly, red or pink, droplet like lesions (papules).

These numerous spots of psoriasis appear over large areas of the body, primarily the trunk, but also the limbs and scalp. It is often triggered by a streptococcal infection, typically streptococcal pharyngitis.

Psoriatic arthritis

It is a form of chronic inflammatory arthritis.

It typically involves painful inflammation of the joints and surrounding connective tissue and can occur in any joint, but most commonly affects the smaller joints of the fingers and

This can result in a sausage-shaped swelling of the fingers and toes known as dactylitis.

It also affect the hips, knees, spine and sacroiliac joint.

About 30% of individuals with psoriasis will develop psoriatic arthritis.

Skin manifestations of psoriasis tend to occur before arthritic manifestations in about 75% of cases.

COMPLICATION:

Psoriasis may become complicated by the development of the arthropathy, erythroderma and several other systemic complications like renel hepatic and cardiovascular etc

ARTHROPATHY

It is the most obstinate complication in about 5-10% cases seen in both sexes around the fourth decade of life.

HEPATIC COMPLICATION

Sometimes hepatic failure may be seen in psoriatic patient due to the direct effect of the psoriasis.

RENAL COMPLICATION

Nephritis may be caused as a co-exsiting infection with guttate psoriasis

INVESTIGATION:

1. ROUTINE INVESTIGATION

(a) Raised ESR is specifically indicative of erythrodermic and generalized pustular type psoriasis.

(b) Leukocytosis indicates pustular psoriasis

(c) Thorat swab culture for nthe detection of beta hemolyticus in guttate psoriasis.

(d) Rheumatoid factor may be found positive.

Diagnosis

The diagnosis of psorisis is clinical.lt is based on recognizing the cardinal morphological lesion of psoriasis characterized by erythematous scaly eruptions, single or multiple, disposed primarily on the extensor surface of the body. The scales are lamellated and silvery white. Auspitz sign is positive ,evident as pinpoint bleeding on grattate.

DIFFERENTIAL DIAGNOSIS

1. INTERTIGO

Since intertigo also occurs on flexors of the body, flexural psoriasis need to be differentiated from intertrigo and is characterised by itching and ringing sensation.

2. NUMMULAR ECZEMA

It is common on extremities of middle aged men.The lesions are highly itchy.

3. SEBORRHEIC DERMATITIS

It is always seen on hairy skin. The lesions are not much defined and are seen as follicular yellowish red papules covered with greasy Allies.

4. LICHEN PLANUS

It give rise to severely itchy lesions covered with thick hyperkeratotic scales which on removal do not show bleeding points as are seen in psoriasis.

5. PITYRIASIS ROSEA

Lesions of pityriasis rosea are slightly raised mostly present in the rib lines.It begins with a herald patch. These conditions shows spontaneous remission and rarely reoccurs.

6. SECONDARY SYPHILIS

In secondary syphilis there will be a exposed of sexual contact and the presence of primary chancre .There will also be lymphadenopathy and condyloma lata.

7. DISCOID LUPUS ERYTHEMATOUS

It is a connective tissue disorder characterized by erythematous plaques covered with thick adherant scales that dip into the patulous hair follicles. Removal of the scales show the characterstic **"carpet rack sign".**

TREATMENT

Psoriasis is characterized by remission and relapses. Although it is difficult to cure yet topical and therpeutic regimens administered singly or in combination are in effective in maintaining the disease in remission. Beside the active therapeutic measure, triggering factor should be identified and their removal should be attempted.

PHOTOTHERAPY

Ultraviolet is an effective treatment of psoriasis. UV radiation in the range of 290- 320NM is optimal. UVR below 300 nm results in more erythema relative to the therapeutic effect and thus lowers the therapeutic index. The ideal period for phototherapy is a young adult with a normal reaction to light and having guttate or plaque psoriasis. Exposure is begin with a dose slightly less than the minimal erythema dose and each subsequent dose is increased by 20% to achieve mild erythematous response.

TOPICAL CORTICOSTEROIDS

Applications of topical corticosteroid is useful in the treatment of localized plaque psoriasis. Treatment is usually intiated with a pottent corticosteroids like

- Clobestal propionate 0.05% (tenovate)
- Betamethasone dipropianate (Diplene)

As the lesions flatten and scaling diminish corticosteroids may be applied intermittently on alternate days. The steroids are effective in psoriasis and probably act by inhibiting mitosis and inflammation.

COAL TAR

Tars inhibit DNA synthesis as well as sensitive the skin to long wave UV light and hence are effective in psoriasis. Tar is an integral part of Goekerman's ien that is useful in the treatment of plaque psoriasis with moderately extensive

SALICYLIC ACID

It is a keratolytic agent and is concentration between 3 and 6% causes softening of the horny layer and shedding of the scales. It produces this desqumation by solublizing the intercellular cement and enchances the shedding the corneocytes. lt may be combined with corticosteroid or tar. Hence the Psoriatic ointment comprising

1) Crude coal tar 6%
2) Salicylic acid 3%
3) Ammoniated mercury 1%

Anthralin

It is most effective in the treatment of psoriasis. The exact mode of action is not known. However it probably acts directly on the stem cell population of the epidermis. Dithranol inhibits key enzymes such as Glucose 6 phosphate dehydrogenase, but it may also act but it may also act by less specific effect such as depriving the cells of oxygen need for their proliferating activity. It also has effect on mitochondria.

MATERIALS AND METHODS

The Clinical study on Psoriasis was earned out in the Post graduate department of Sirappu Maruthuvam, Govt Siddha Medical College, and Palayamkottai. In this study 40 patients (who satisfy the inclusion criteria and exclusion criteria) were treated as OP and IP patients.

Selection of the Patients:

Age: Between 15 years and 60 years

Sex: Both male and female.

INCLUSION CRITERIA

- Macules
- Papules
- Pustules
- Plaques of erythema
- Candle-grease sign
- Auspitz sign
- Itching
- Keobner's phenomenon

Patients wtih Silvery white patches, Coin shaped lesions, Scaling with or without itching.

The detailed history was taken from the patient about.

The diagnosis was made by following Siddha diagnostic methods. Nilam, Kaalam, Poriyalaridhal, Pulanalarithal, Vinaadhal, Mukkutram, Udal Thathukal Nilai and Envagai Thervugal, and the diagnosis of Naadi nilai.

EXCLUSION CRITERIA

- Cardiac disease
- Hypertension
- Diabetes mellitus
- Use of narcotic drugs
- Pregnancy and lactation
- Evidence of any skin condition other then psoriasis
- Malignancy
- Tuberculosis

ASSESSMENT OF PSORIASIS WITH SYMPTOMS :

Severe	-	Marked plaque elevation, Scaling present / Not present erythema.
Moderate	-	Moderate plaque elevation, Scaling present / Not present erythema.
Mild	-	Slight plaque elevation, Scaling present / Not present erythema,
Almost Clear	-	Intermediate between mild and clear.
Clear	-	No signs of psoriasis.

Investigation:

The following investigations were done in all selected patients in the laboratory of Government Siddha Medical College, Palayamkottai.

ROUTINE INVESTIGATION

- BLOOD
- Hb
- ESR
- Sugar-Fasting
- Post prandial

Renal functions tests:

a. Blood urea :

b. Serum creatinine:

Liver function tests:

SGOT	SGPT	Alk.Phosphatase
Albumin	Globulin	Total Protein

Serum Bilirubin: Total Direct Indirect

URINE

Albumin

Sugar

Deposits

INVESTIGATION BASED ON SIDDHA SYSTEM :

1. Naa
2. Niram
3. Mozhi
4. Vizhi

5. Malam
6. Moothiram - Neerkkuri, Neikkuri.
7. Sparisam
8. Naadi

Skin examination:

Sitc-

Colour

Size

Shape

Border

TREATMENT:

Vellai ennai 15ml at morning with hot water was given on the first day of treatment.

All the patients were treated with the following medicines.

MEDICINE NAME:

INTERNAL MEDICINE	**:**	***OMA LEGIYAM***
Reference	:	Aathmaratchamirtham Vaidhiya Sara Sankiragam Research Medicine, Page No.446
Dosage	:	5.1 gm twice a day
Duration of the Treatment	:	48 days
EXTERNAL MEDICINE	**:**	THAGARAI LEBAM
Reference	:	Sarabendirar Vaithiya Muraigal Pg.No.136

All the patients were advised to follow dietary regimen (or) Pathiyam.

Pranayama and simple Yogasana were advised as a supportive therapy.

The Bio - Chemical analysis was done in the department of Bio Chemistry and Pharmacological analysis was done in the Pharmacological laboratory of KMCH College of Pharmacy, Coimbatore

OBSERVATION AND RESULTS

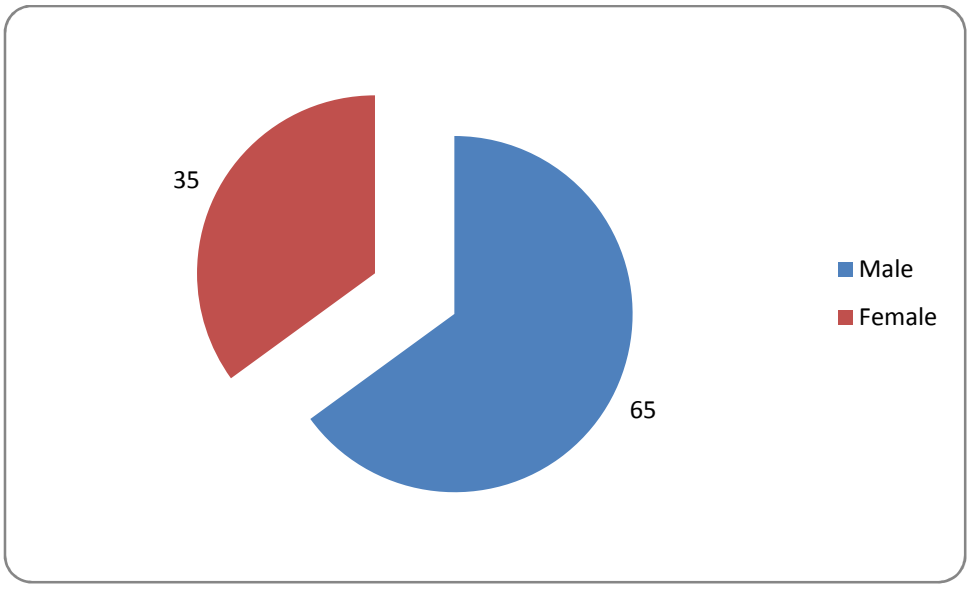
For the clinical study 40 patients were selected and treated in PG III Sirappu Mruthuvam department, GSMC hospital Palayamkottai. Results were observed with respect to the following criteria,

1. Gender distribution
2. Family history
3. Age distribution
4. Kalam distribution
5. Occupational distribution
6. Seasonal variation
7. Thinai
8. Socio-economic status
9. Dietary habits
10. Precipitating factors
11. Mode of onset
12. Clinical features
13. Other general clinical features
14. Disturbances of kanmenthirium
15. Derangement of vatham
16. Disburbances of pitham
17. Derangement of kabam
18. Udal kattukal
19. Envagai thervugal
20. Selection of patients
21. Effect of therapy with trial drug alone
22. Effect of therapy with trial drug along with complementary therapy
23. Comparison between effective of trial drug and trial drug with complementary therapies.
24. Overall results after treatment.

Table :1

GENDER DISTRIBUTION

S.No	Gender	No of Cases	Percentage (%)
1	Male	26	65
2.	Female	14	35
	Total	40	100



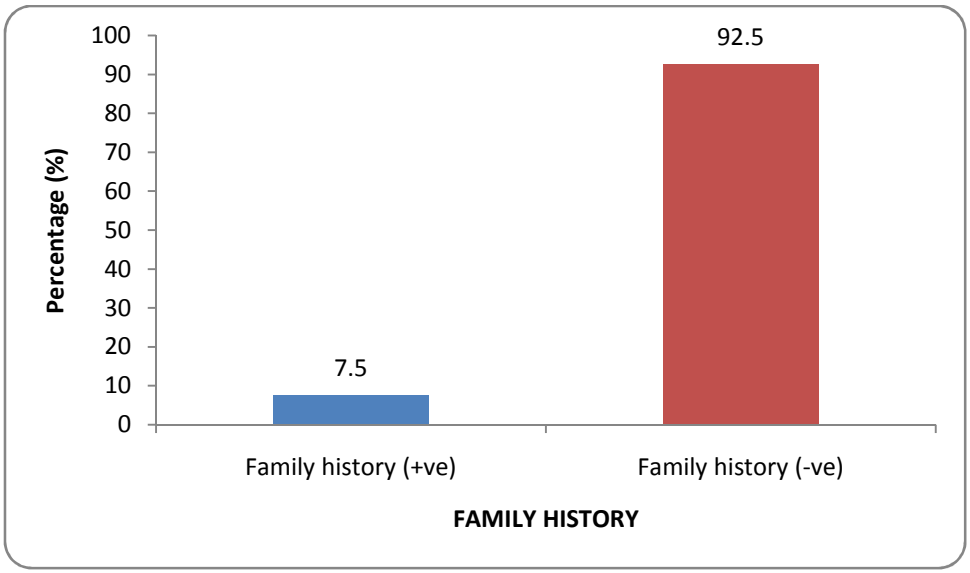
Inference

About 65% of them were male and 35% of them were women

Table :2

FAMILY HISTORY

S.No	Criteria	No of Cases	Percentage (%)
1	Family history (+ve)	3	7.5
2.	Family history (-ve)	37	92.5
	Total	40	100



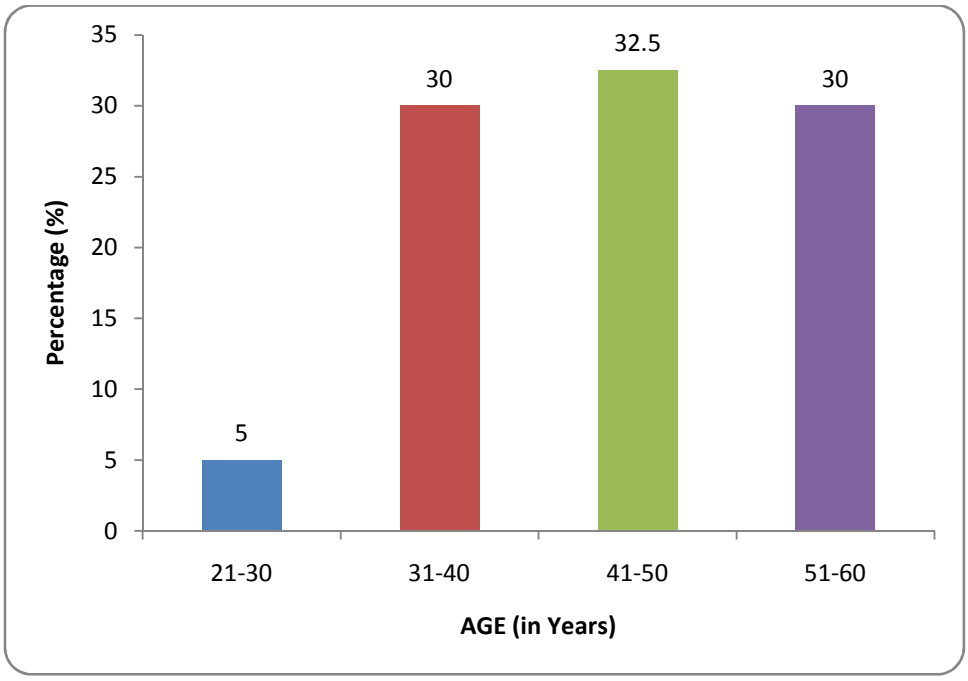
Inference

About 7.5 % of them had positive family history

Table : 3

AGE DISTRIBUTION

S.No	Age (Years)	No of Cases	Percentage
1	21 - 30	2	5
2.	31 – 40	12	30
3	41 – 50	14	32.5
4.	51 – 60	12	30
	Total	40	100



Inference

The prevalence of the disease was found to be higher in the age group 41 - 50 years .

Table :4

KALAM DISTRIBUTION

In siddha literature human life has been divided into three periods follows

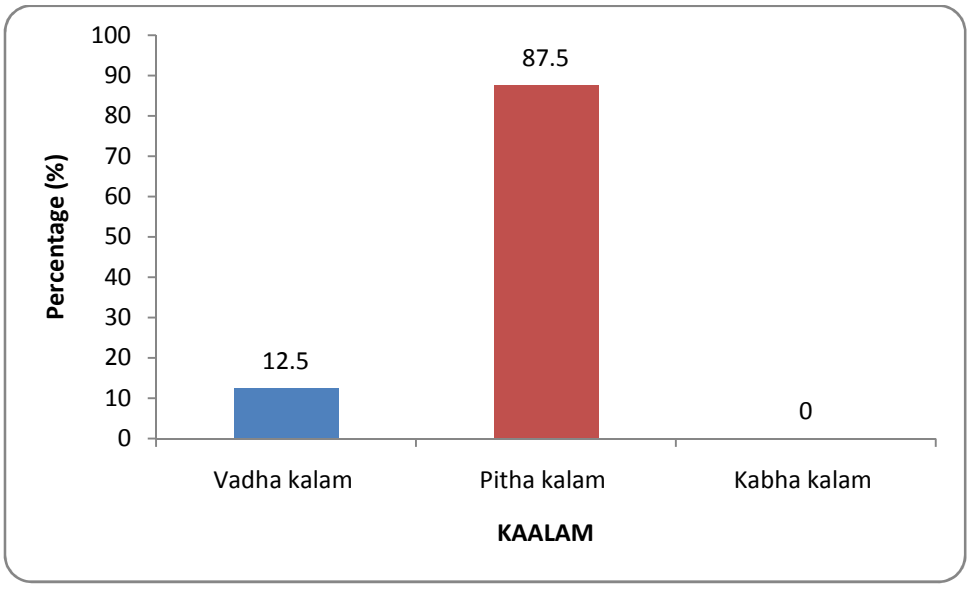
1.Vadham

2. Pitham

3.Kabam

The duration of each period is said to be 33 years.

S.No	Kalam	No of Cases	Percentage
1	Vadha kalam	5	12.5
2.	Pitha kalam	35	87.5
3.	Kabha kalam	0	0
	Total	40	100



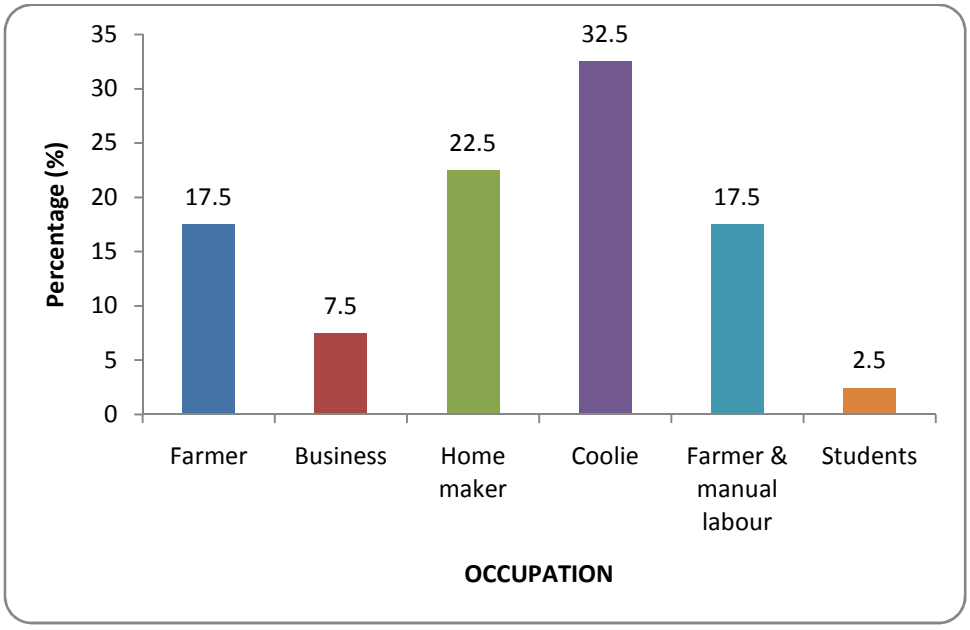
Inference:

Out of 40 patients, 35patients reported in pitha kalam, 5 were in vadha kalam.

Table: 5

OCCUPATIONAL STATUS

S.No	Occupation	No of Cases	Percentage (%)
1	Farmer	7	17.5
2.	Business	3	7.5
3	Home maker	9	22.5
4.	Coolie	13	32.5
5.	Farmer & manual labour	7	17.5
6.	Students	1	2.5
	Total	40	100



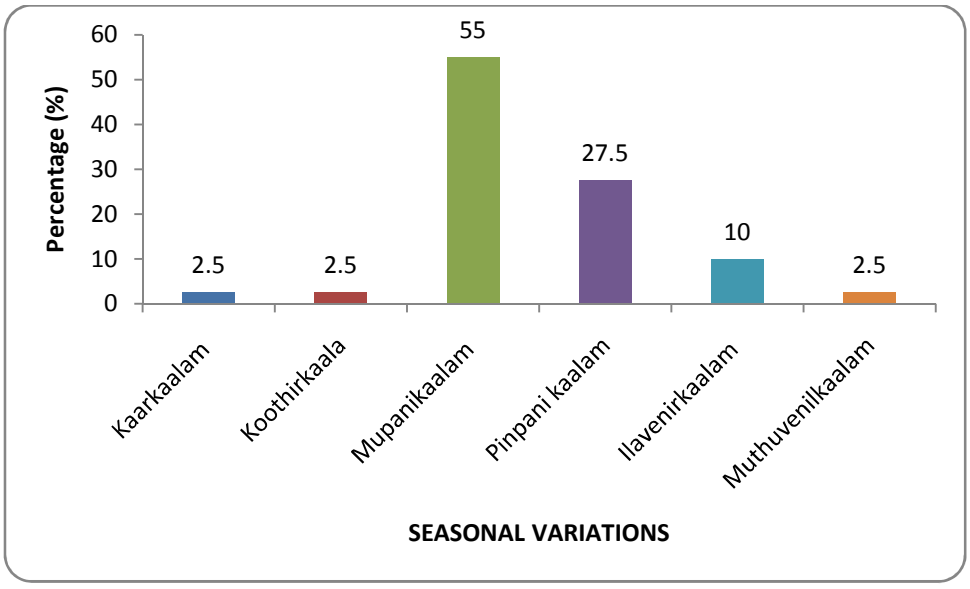
Inference

Out of 40 cases, in this study the rate of incidence is higher in coolie worker(32.5%)

Table: 6

SEASONAL VARIATIONS

S.No	Seasons	No of Cases	Percentage (%)
1	Kaarkaalam (16 Aug – 15 Oct)	1	2.5
2.	Koothirkaalam (16 Oct- 15 Dec)	1	2.5
3.	Mupanikaalam (16 Dec - 15Feb)	22	55
4.	Pinpani kaalam – (16 Feb – 15 Apr)	11	27.5
5.	Ilavenirkaalam - (16 Apr- 15 Jun)	4	10
6.	Muthuvenilkaalam – (16 Jan – 15Aug)	1	2.5
	Total	40	100



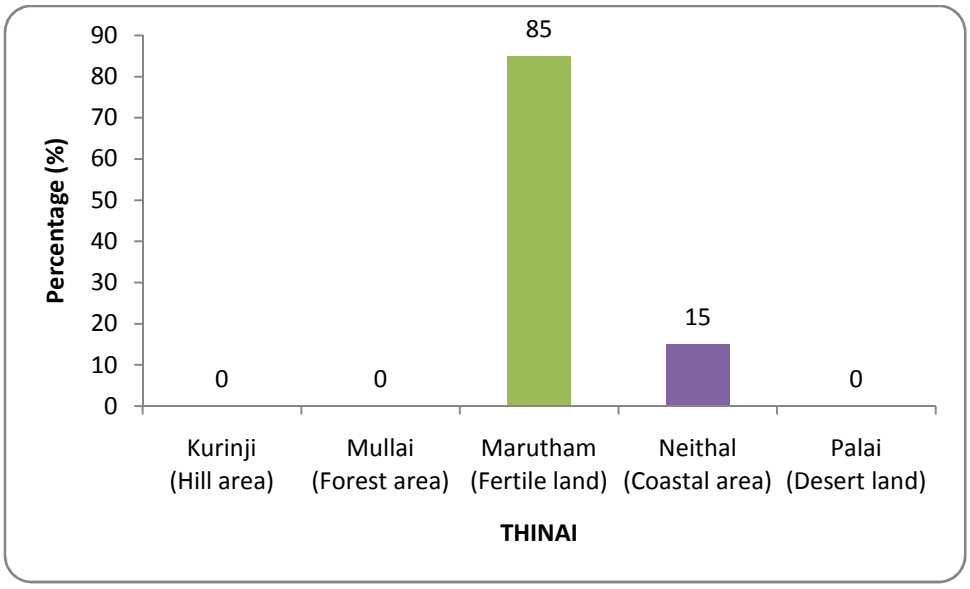
Inference

Out of 40 patients, 22 cases (55%) were admitted in Munpanikalam and 11 patients (27.5%) were admitted in pinpanikalam and 4 patients (10%) were admitted in Elavenil kalam and 1 case (2.5%) were admitted in other kaalam.

Table: 7

THINAI

S.No	Thinai	No of Cases	Percentage
1	Kurinji (Hill area)	0	0
2.	Mullai (Forest area)	0	0
3.	Marutham (Fertile land)	34	85
4.	Neithal (Coastal area)	6	15
5.	Palai (Desert land)	0	0
	Total	40	100



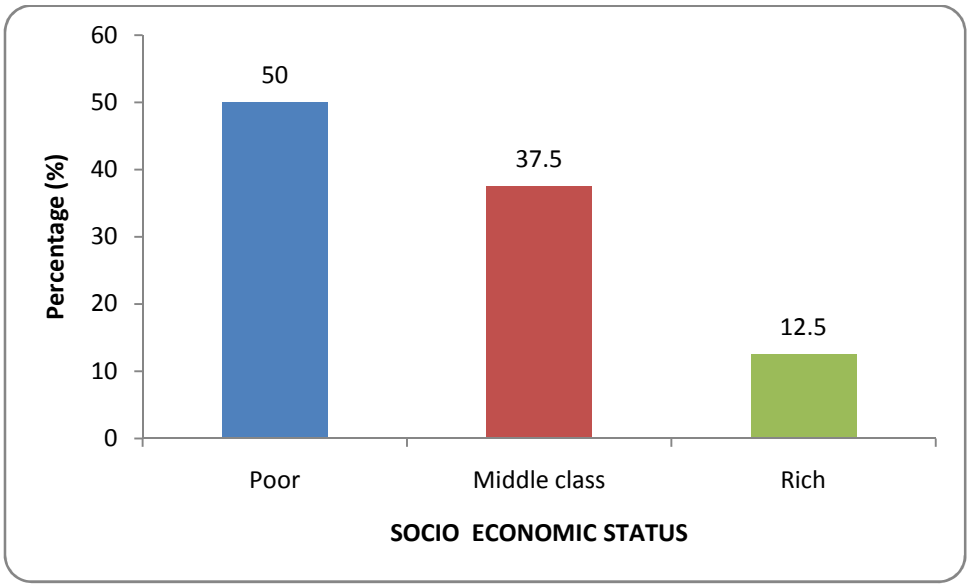
Inference

Among the 40 patients, 34(85%) cases were from marutham and 6(15%) cases were from Neithal thinai.

Table: 8

SOCIO ECONOMIC STATUS

S.No	Socio economic status	No of Cases	Percentage (%)
1	Poor	20	50
2.	Middle class	15	37.5
3	Rich	5	12.5
	Total	40	100



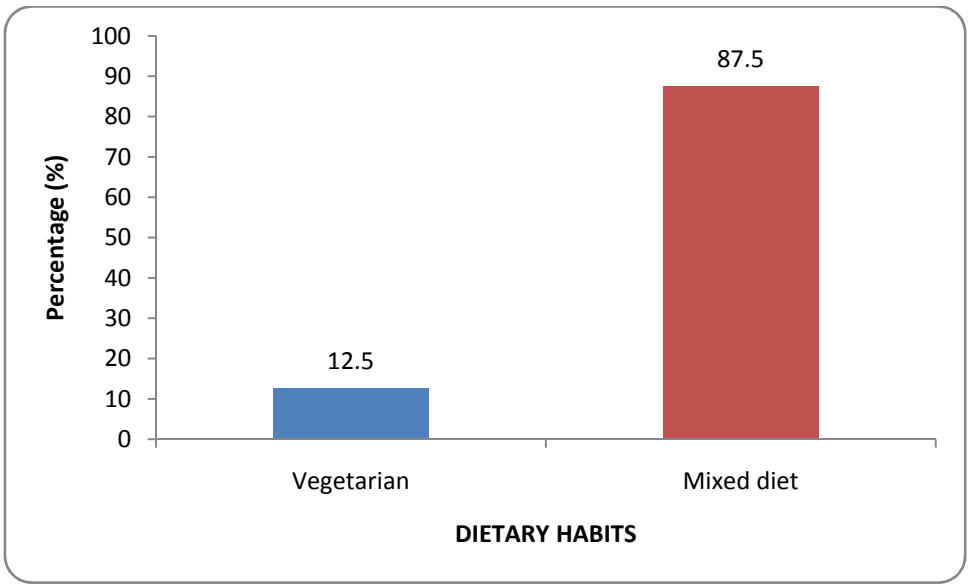
Inference

About 50 % of them were from low socio economic status.

Table :9

DIETARY HABITS

S.No	Dietary habits	No of Cases	Percentage (%)
1	Vegetarian	5	12.5
2.	Mixed diet	35	87.5
	Total	40	100



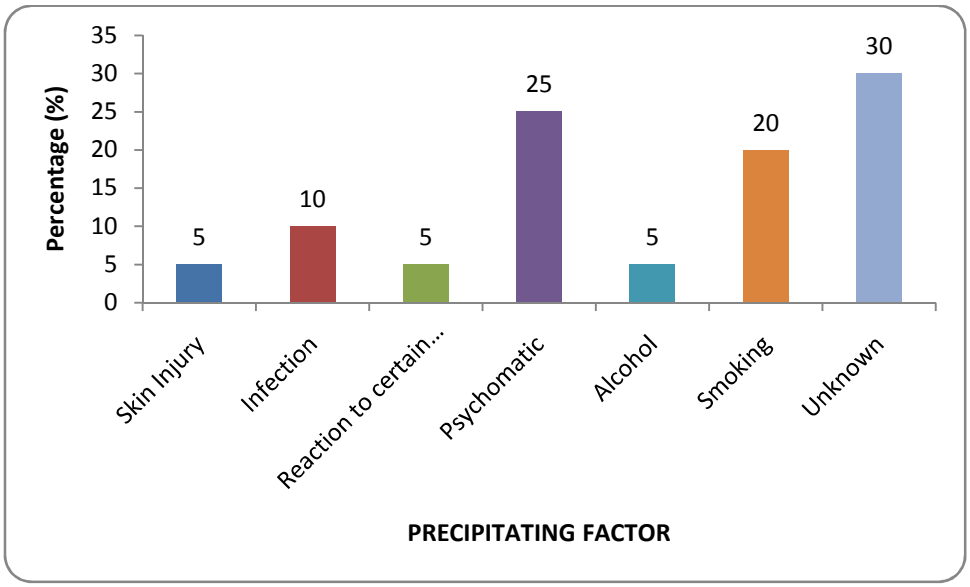
Inference

All the cases except five were mixed diet.

Table 10

PRECIPITATING FACTORS

S.No	Precipitating factor	No of Cases	Percentage (%)
1	Skin Injury	2	5
2.	Infection	4	10
3.	Reaction to certain medicine	2	5
4.	Psychomatic	10	25
5.	Alcohol	2	5
6.	Smoking	8	20
7.	Unknown	12	30



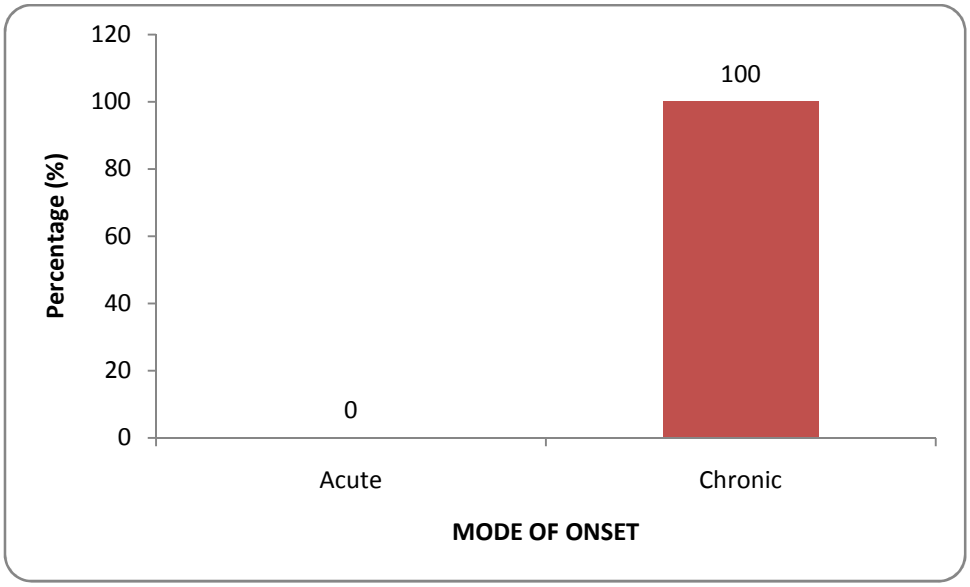
Inference

Among the 40 patients, 12 of them (30%) were unknown, 10 of them (25%) had the psychomatic disorders and 8 (20%) cases caused for smoking, 4 of them (10%) were infected.

Table :11

MODE OF ONSET

S.No	Dietary habits	No of Cases	Percentage (%)
1	Acute	0	0
2.	Chronic	40	100



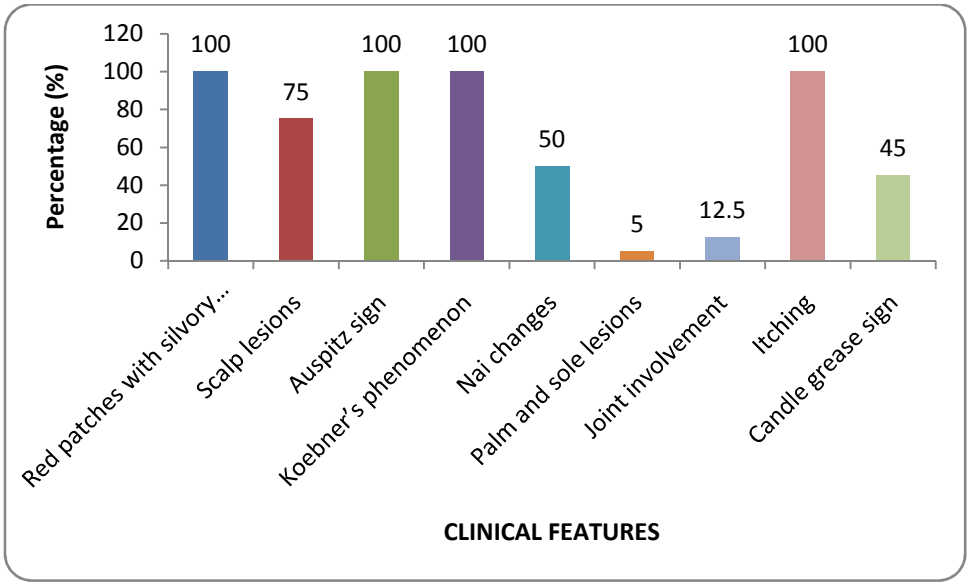
Inference

According to this study 100% of cases were reported as chronic onset.

Table :12

CLINICAL FEATURES

S.No	Clinical features	No of Cases	Percentage (%)
1	Red patches with silvory scaling	40	100
2.	Scalp lesions	30	75
3.	Auspitz sign	40	100
4.	Koebner's phenomenon	40	100
5.	Nai changes	20	50
6.	Palm and sole lesions	2	5
7.	Joint involvement	5	12.5
8.	Itching	40	100
9.	Candle grease sign	18	45



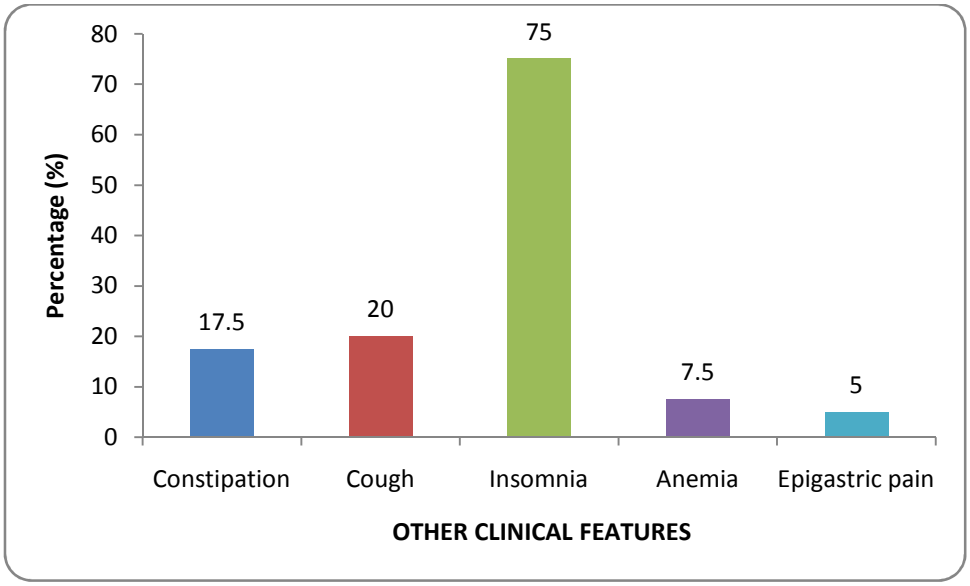
Inference

Among the forty (40) cases all of them had scaling, itching, positive auspitz sign, koebhers phenomenon 30 patients had scalp and 20 patients had nail changes, 18 of them had candle grease sign and 5 of them has joint involvement and 2 of them had palm and sole lesions.

Table :13

OTHER GENERAL CLINICAL FEATURES

S.No	Clinical features	No of Cases	Percentage (%)
1	Constipation	7	17.5
2.	Cough	8	20
3.	Insomnia	30	75
4.	Anemia	3	7.5
5.	Epigastric pain	2	5



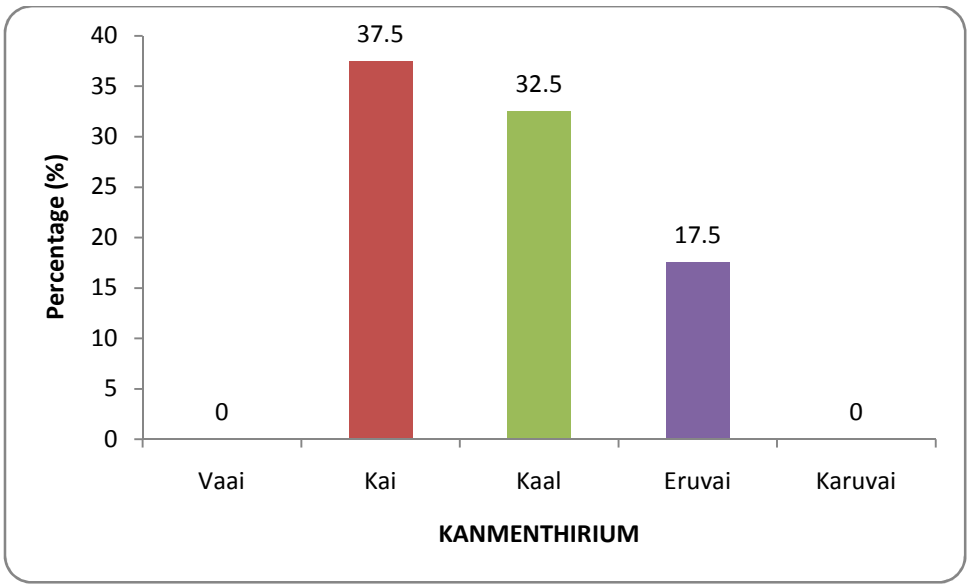
Inference

Among 40 patients, 30 had sleep disturbances, 7 of them had constipations, 8 of them had cough, 3 of them had anemia, 2 of them had epigastric pain.

Table :14

DISTURBANCES OF KANMENTHIRIUM

S.No	Kanmenthirium	No of Cases	Percentage (%)
1	Vaai	0	0
2.	Kai	15	37.5
3.	Kaal	13	32.5
4.	Eruvai	7	17.5
5.	Karuvai	0	0



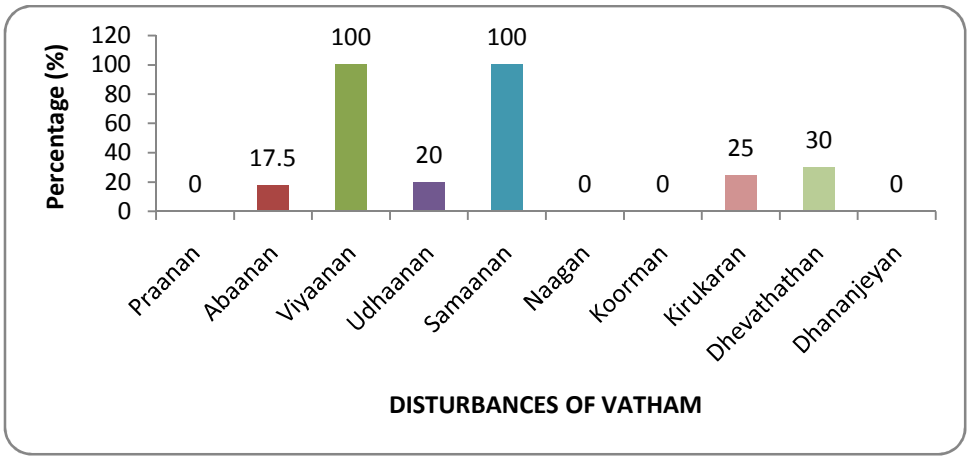
Inference

Among the all kanmenthirium (kai, kaal, vaai, eruvai, karuvai) Kaal was affected 13 patients (32.5%) and eruvai was affected in 7 cases (17.5%) and kai was affected in 15 cases (37.5%).

Table: 15

TABLE SHOWING THE DERANGEMENT OF VATHAM

S.No	Vatham	Number of cases	Percentage
1.	Praanan	0	0
2.	Abaanan	7	17.5
3.	Viyaanan	40	100
4.	Udhaanan	8	20
5.	Samaanan	40	100
6.	Naagan	0	0
7.	Koorman	0	0
8.	Kirukaran	10	25
9.	Dhevathathan	12	30
10.	Dhananjeyan	0	0



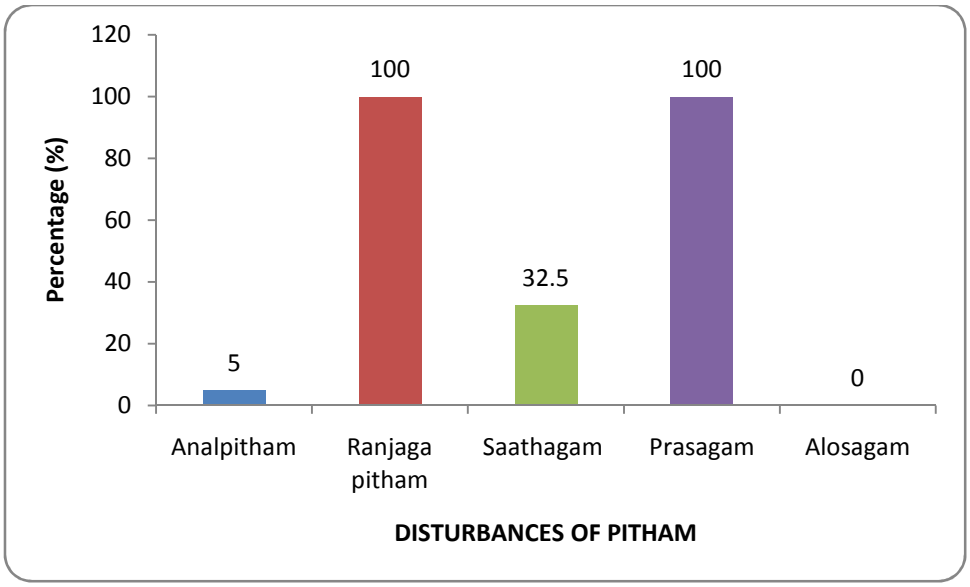
Inference

Among the vadham 17.5% of them were affected by abanan, 30% of them were affected by devathathan. 100% of them were affected viyanan and samanan. 25% of them were affected by kirukaran, 20% of them were affected by Uthanan.

Table: 16

DISTURBANCES IN PITHAM

S.no	Pitham	Number of cases	Percentage
1.	Analpitham	2	5
2.	Ranjaga pitham	40	100
3.	Saathagam	13	32.5
4.	Prasagam	40	100
5.	Alosagam	0	0



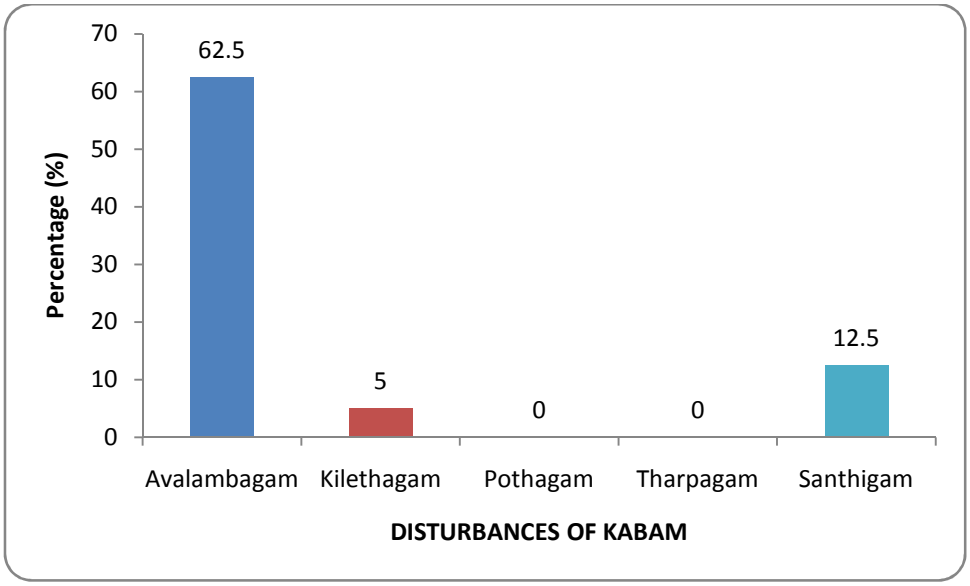
Inference

Ranjaga pitham and Prasagam was affected in all 40 cases (100%) and Sathagam was affected in 13 cases (32.5%), Anarpitham was affected in 2 cases (5%).

Table 17

TABLE SHOWING THE DERANGEMENT OF KABHAM

S.No	Kabham	Number of cases	Percentage
1.	Avalambagam	25	62.5
2.	Kilethagam	2	5
3.	Pothagam	0	0
4.	Tharpagam	0	0
5.	Santhigam	5	12.5



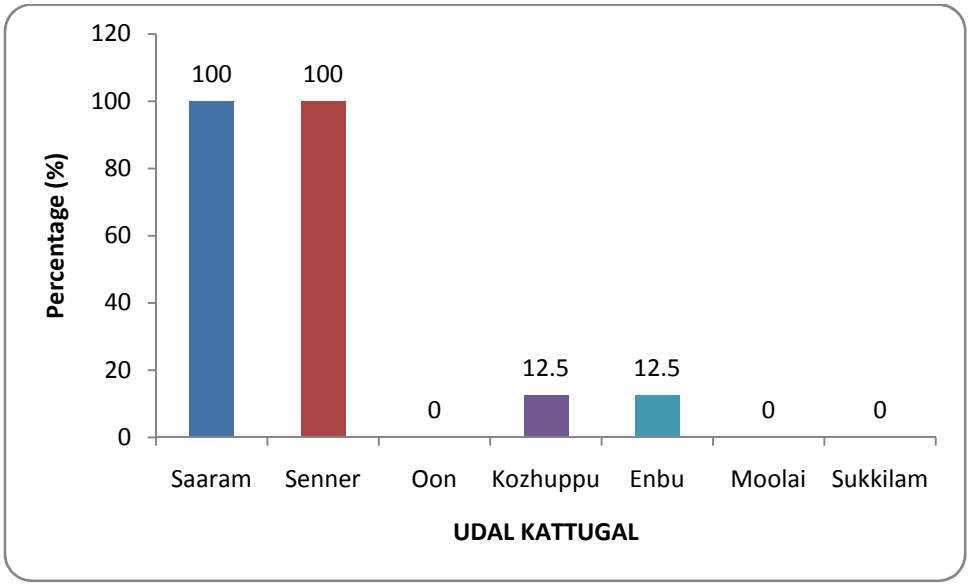
Inference

Avalambagam was affected in 25 cases and Santhigam was affected in 5 cases, Kilethagam was affected in 2 cases.

Table 18

TABLE SHOWING THE CONDITION OF UDAL KATTUKAL

S.No	Udal kattukal	NUMBER OF CASES	PERCENTAGE
1.	Saaram	40	100
2.	Senner	40	100
3.	Oon	0	0
4.	Kozhuppu	5	12.5
5.	Enbu	5	12.5
6.	Moolai	0	0
7.	Sukkilam	0	0



Inference

In all the cases Saaram, senneer were affected (100%) enbu and kozhuppu were affected in 5 cases.

Table : 19

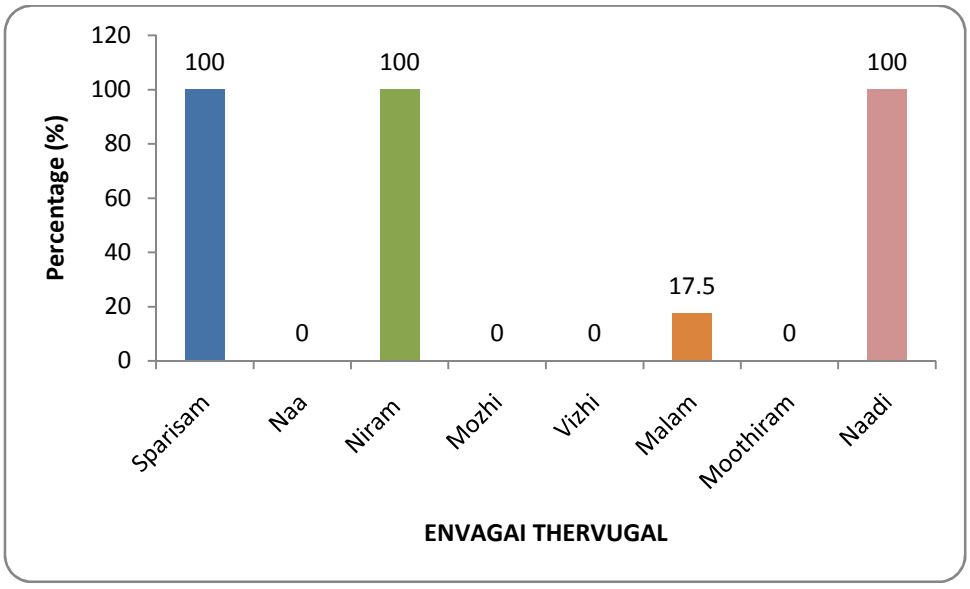
ENVAGAITHERVUGAL

S.No.	Envagai thervugal	Number of cases	Percentage
1.	Sparisam	40	100
2.	Naa	0	0
3.	Niram	40	100
4.	Mozhi	0	0
5.	Vizhi	0	0
6.	Malam	7	17.5
7.	Moothiram	0	0
8.	Naadi	40	100

Naadi : Pitha vatham 15 cases (37.5%)

Vathapitham 8 cases (20%)

Pithakabam 17 cases (42.5%)



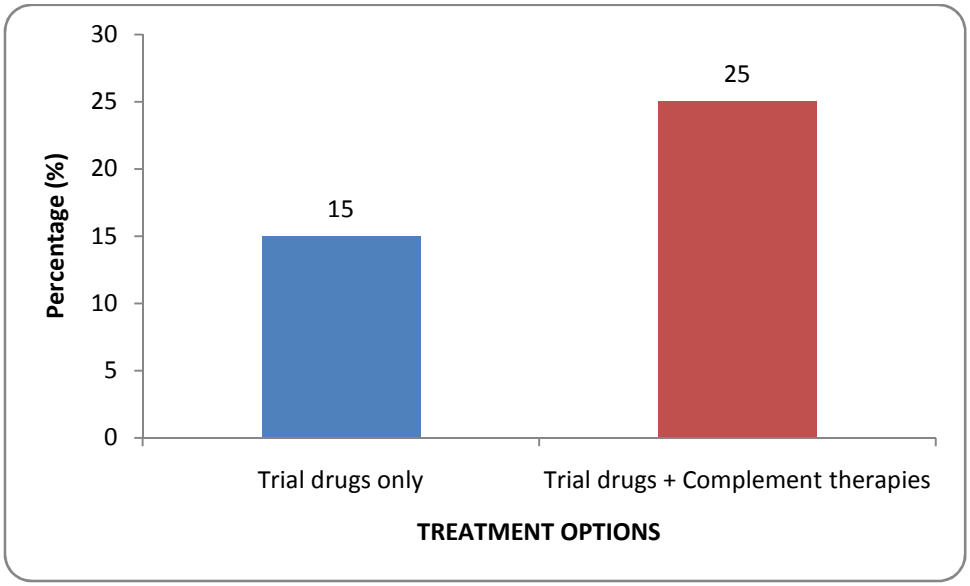
Inference

Sparisam was affected in all the 40 cases niram was affected in all cases (100%) malam was affected in 7 cases (17.5).

Table: 20

SELECTION OF PATIENTS

TREATMENT OPTIONS	NO. OF PATIENTS
Trial drugs only	15
Trial drugs + Complement therapies	25



Inference

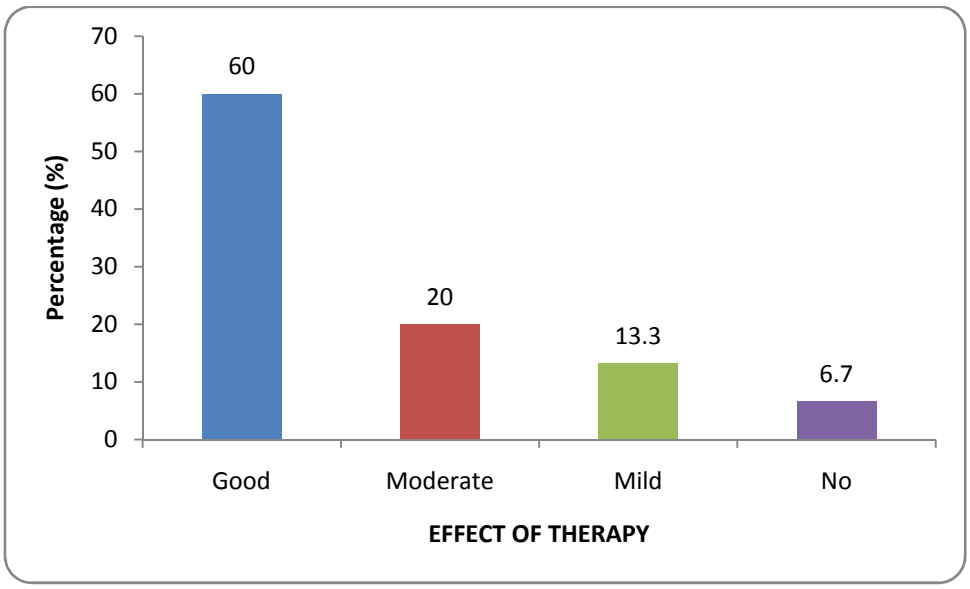
This clinical study includes 40 patients, i.e 30 from OP ward and 10 patients from IP ward, Out of this 2 patients from In patient Department and 13 patients from Out patient department i.e. totally 15 patients, were selected for treating trial drug alone.

Another 17 patients from OP and 8 patients from IP ie totally 25 patients were selected for treating with trial drug and complementary therapies.

Table: 21

EFFECT OF THERAPY IS ASSESSED FROM BELOW THE TABULATED DATA

S.No	Effect of Therapy	No.of patients	Percentage
1.	Good	9	60
2.	Moderate	3	20
3.	Mild	2	13.3
4.	No	1	6.7
	Total	**15**	**100**



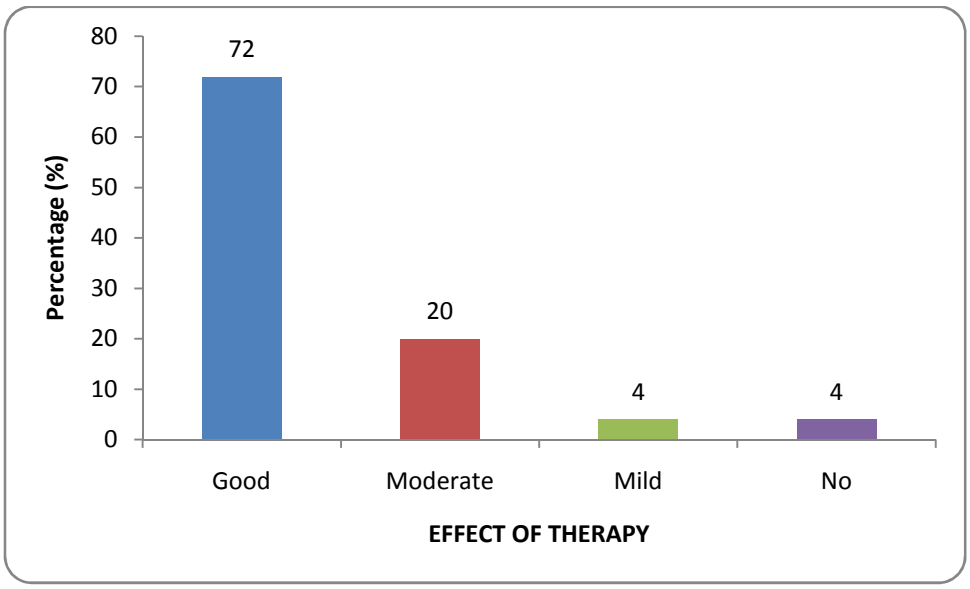
Inference

By heating alone with trial drugs 60% of patients had good improvement, 20% of patients had moderate improvement, 13.3% had mild improvement, and 6.7% had no improvement.

Table: 22

EFFECT OF THERAPY IS ASSESMENT FROM THE BELOW TABULATED DATA

S.No	Effect of Therapy	No.of patients	Percentage
1.	Good	18	72
2.	Moderate	5	20
3.	Mild	1	4
4.	No	1	4
	Total	**25**	**100**



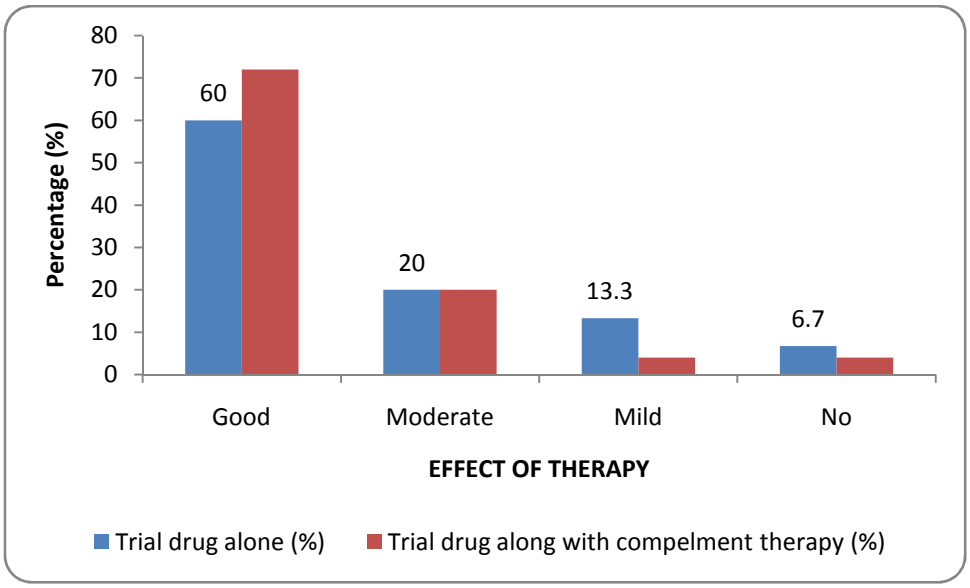
Inference

Among the patients who were selected for treating both with trial drug and complement therapies72% of patients had good improvement, 20% of patients had moderate improvement, 4% had mild improvement, and 4% had no improvement.

Table: 23

COMPARISON BETWEEN EFFECTIVE OF TRIAL DRUG AND TRIAL DRUG WITH COMPLEMENTARY THERAPIES

S.No	Effect of Therapy	Trial drug alone (%)	Trial drug along with compelment therapy (%)
1.	Good	60	72
2.	Moderate	20	20
3.	Mild	13.3	4
4.	No	6.7	4



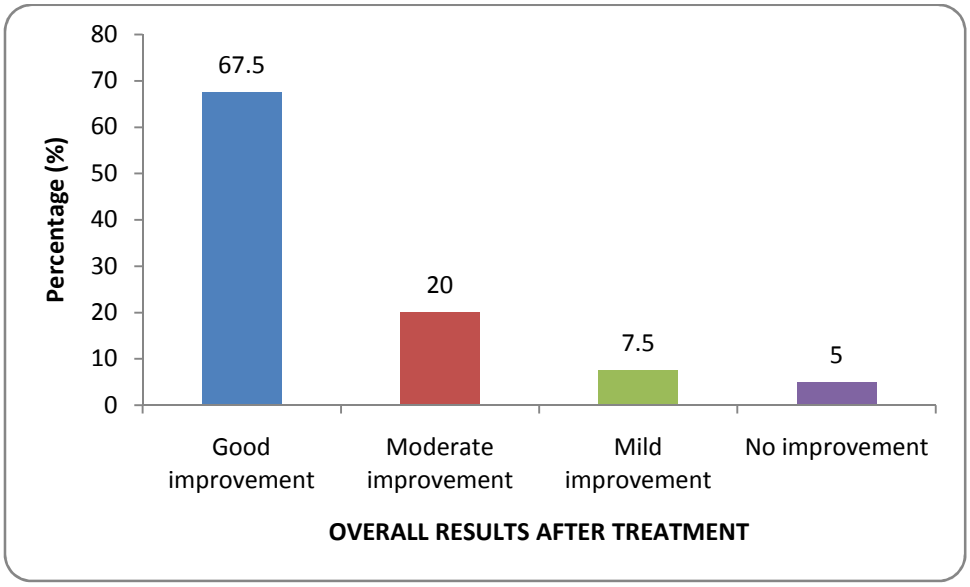
Inference

From the above data it clearly shows that effect of therapy is seen best when trial drug is given with complement therapy compared to giving trial drug alone.

Table: 24

OVERALL RESULTS AFTER TREATMENT

S.No	Effect of Therapy	No.of patients	Percentage
1.	Good improvement	27	67.5
2.	Moderate improvement	8	20
3.	Mild improvement	3	7.5
4.	No improvement	2	5



Inference

Out of 40 patients, good improvement was observed in 67.5% patients, Moderate improvement was observed in 20% patients, Mild improvement was observed in 7.5% patients and no improvement was observed 5% patients.

List of Out Patients of PG-III Sirappu Maruthuvam Department Given

1. Oma legiyam- Internal 2. Thagarai lebam - External

S.NO	OP.NO	NAME	AGE/SEX	OCCUPATION	DATE OF ADMISSION	DATE OF DISCHARGE	TOTAL NO. OF DAYS	GRADE	RESULTS
1	11832	Sabari	33/M	COOLIE	18.12.2017	04.02.2018	48	Grade I	GOOD
2	112002	Mariappan	36/M	COOLIE	19.12.2017	06.02.2018	49	Grade I	GOOD
3	112003	Kumar	43/M	Farmer & manual labour	19.12.2017	05.02.2018	48	Grade II	MODERATE
4	113813	Mariammal	48/F	HOME MAKER	25.12.2017	12.02.2018	49	Grade I	GOOD
5	113814	Eassaki	50/M	FARMER	25.12.2017	06.02.2018	43	Grade I	GOOD
6	11512	Mariappan	34/M	Farmer & manual labour	26.12.2017	08.02.2018	44	Grade II	MODERATE
7	1503	Senthil	53/M	COOLIE	04.01.2018	21.02.2018	48	Grade II	MODERATE
8	1504	Kamaraj	36/M	Former & manual labour	04.01.2018	22.02.2018	49	Grade I	GOOD
9	1963	Chelliah	56/M	FARMER	05.01.2018	22.02.2018	48	Grade I	GOOD
10	3091	Ramar	53/M	FARMER	08.01.2018	24.02.2018	47	Grade I	GOOD
11	3144	Kasthuri	41/F	HOME MAKER	08.01.2018	25.02.2018	48	Grade I	GOOD
12	6007	Manthiram	37/M	COOLIE	18.01.2018	08.03.2018	49	Grade I	GOOD
13	6008	Chellammal	36/F	HOME MAKER	18.01.2018	09.03.2018	50	Grade I	GOOD
14	6009	Rajam	33/F	COOLIE	18.01.2018	07.03.2018	48	Grade II	MODERATE
15	6443	Mohamed kadhar	38/M	BUSINESSMAN	19.01.2018	05.03.2018	45	Grade I	GOOD

16	6444	Ramuthai	46/F	COOLIE	19.01.2018	07.03.2018	47	Grade I	GOOD
17	7350	Petchiammal	44/F	FARMER	22.01.2018	11.03.2018	48	Grade I	GOOD
18	7351	Chellaiah	55/M	COOLIE	22.01.2018	08.03.2018	45	Grade I	GOOD
19	9720	Ayirathammal	52/F	HOME MAKER	29.01.2018	10.03.2018	48	Grade I	GOOD
20	9721	Perumal	45/M	BUSINESSMAN	29.01.2018	10.03.2018	48	Grade I	GOOD
21	12153	Mari	51/F	HOME MAKER	05.02.2018	24.03.2018	48	Grade IV	NO
22	12269	Kadhar	33/M	BUSINESSMAN	08.02.2018	26.03.2018	47	Grade I	GOOD
23	13460	Rajam	36/F	HOMEMAKER	16.02.2018	04.04.2018	48	Grade III	MILD
24	13461	Nagaraj	42/M	Farmer & manual labour	16.02.2018	04.04.2018	48	Grade III	MILD
25	14733	Nambi	58/M	FARMER	19.02.2018	06.04.2018	47	Grade I	GOOD
26	26206	Vickram	48/M	COOLIE	18.03.2018	29.04.2018	43	Grade I	GOOD
27	27471	Piraguammal	40/F	COOLIE	22.03.2018	08.05.2018	48	Grade II	MODERATE
28	28218	Ponnamal	50/F	HOME MAKER	24.03.2018	10.05.2018	48	Grade I	GOOD
29	32646	Kannan	52/M	COOLIE	09.04.2018	26.05.2018	48	Grade II	MODERATE
30	33828	Sethu	21/M	STUDENT	11.04.2018	02.06.2018	53	Grade I	GOOD

List of In Patients of PG-III Sirappu Maruthuvam Department Given

1. Oma legiyam- Internal 2. Thagarai lebam - External

S.NO	IP.NO	NAME	AGE/SEX	OCCUPATION	DATE OF ADMISSION	DATE OF DISCHARGE	TOTAL NO. OF DAYS			GRADE	RESULTS
							IP	OP	TOTAL		
1	2074	Balasubramanian	40/M	Farmer & manual labour	19.07.2017	31.07.2017	12	36	48	Grade I	GOOD
2	2556	Shanmugam	45/M	FARMER	14.09.2017	17.10.2017	34	14	48	Grade I	GOOD
3	3157	Pravinkumar	35/M	COOLIE	30.11.2017	04.12.2017	5	35	40	Grade III	MILD
4	505	Subbuthai	58/F	HOMEMAKER	25.02.2018	04.03.2018	8	35	43	Grade II	MODERATE
5	550	Thangamani	54/F	HOMEMAKER	28.02.2018	24.03.2018	25	21	46	Grade I	GOOD
6	912	Veerachami	42/M	Farmer & manual labour	05.04.2018	26.04.2018	22	28	50	Grade I	GOOD
7	1304	Arumugam	45/M	COOLIE	16.05.2018	05.06.2018	21	20	41	Grade I	GOOD
8	1305	Kaliappan	52/M	Farmer & manual labour	16.05.2018	01.06.2018	17	19	36	Grade IV	NO
9	1309	Muthaiah	57/M	FARMER	17.05.2018	27.05.2018	11	30	41	Grade I	GOOD
10	1312	Malliga	30/F	COOLIE	17.05.2018	28.05.2018	12	28	40	Grade II	MODERATE

Blood Investigation of OP Patients

S.No	OP.No	WBC TOTAL		WBC DIFFERENTIAL COUNT (DC)						HB gms %		E.S.R. (mm)				BT				AT			
		BT	AT	BT			AT			BT	AT	BT		AT		B.S	B.U	CH	S.C.	B.S	B.U	CH	S.C.
				P	L	E	P	L	E	1 hr	1 hr	½hr	1hr	½hr	1hr								
1	11832	8000	8600	66	28	6	68	28	4	12.2	13	4	8	5	10	123	22	180	0.9	130	22	180	0.9
2	112002	8600	9000	64	28	8	64	30	6	10.5	11	8	16	9	18	120	20	160	0.8	130	18	140	0.6
3	112003	8100	8600	70	26	4	72	26	2	9.6	11.2	35	72	25	56	110	26	185	0.9	120	25	185	0.9
4	113813	8000	8400	68	22	10	68	26	6	10	10.5	8	16	9	18	130	18	140	0.4	130	18	140	0.6
5	113814	7000	10600	78	20	2	76	22	2	9.5	11.2	11	22	10	20	112	26	160	0.6	120	24	160	0.4
6	11512	7500	7300	65	30	5	58	39	3	12	12.5	-	50	-	30	115	20	180	0.9	118	22	185	0.8
7	1503	8000	8100	60	31	9	58	30	7	9.9	10.2	15	30	13	21	98	25	192	0.7	100	25	196	0.6
8	1504	8200	8200	64	31	5	64	28	7	13.8	14	11	22	9	18	132	43	140	0.7	130	23	160	0.7
9	1963	8700	9000	68	30	2	68	30	2	13.5	14	4	9	10	20	97	29	205	0.8	100	22	200	0.9
10	3091	8000	8200	58	38	4	58	39	3	11.5	12.8	15	30	10	20	130	19	200	0.5	126	22	194	0.4
11	3144	7000	7200	60	35	5	62	35	3	14.6	15	10	20	12	24	75	17	167	0.4	100	18	160	0.6
12	6007	8400	8300	70	23	7	65	32	3	11.3	12.1	15	30	10	22	117	22	155	0.7	112	22	194	0.6
13	6008	9500	10000	60	35	5	65	25	10	12.3	13	5	10	6	12	110	37	119	0.7	120	35	120	0.8

14	6009	8000	8400	56	40	4	56	40	4	11.8	12	5	10	6	12	111	31	199	1.0	120	32	200	0.9
15	6443	10200	10000	70	27	3	70	27	3	13.1	14	4	8	4	8	101	42	189	0.7	110	32	190	0.7
16	6444	9800	9600	57	40	3	60	35	5	13.3	14	6	12	7	14	91	25	190	0.7	100	22	160	0.8
17	7350	8600	8900	64	30	6	65	30	5	10.8	11	13	26	10	20	80	20	152	0.6	90	22	160	0.8
18	7351	8600	9000	67	26	7	66	26	7	12.3	14	10	20	12	24	140	19	180	0.6	120	20	180	0.6
19	9720	9600	9000	65	28	4	65	28	4	11.3	12	8	16	9	18	110	18	160	0.8	120	19	170	0.9
20	9721	9000	9100	72	25	3	72	25	3	10.9	11	34	68	14	28	136	21	176	0.5	140	22	176	0.7
21	12153	7300	7600	59	37	4	58	39	3	12.4	12	22	44	11	22	87	36	170	0.9	92	40	168	0.8
22	12269	8600	8400	62	36	2	65	32	10	10	11	20	40	10	20	110	26	150	0.3	112	28	150	0.5
23	13460	8000	8000	57	31	12	65	28	7	11.3	12	34	68	12	24	91	17	115	0.6	120	17	120	0.8
24	13461	9200	9000	68	28	4	66	28	8	12.6	13	9	18	8	15	128	23	100	0.8	130	24	120	0.9
25	14733	9300	9400	70	28	2	65	33	2	9.7	10.2	30	67	18	36	89	32	168	0.5	118	30	164	0.6
26	26206	6900	7300	71	27	2	69	29	2	10.6	10.9	26	52	20	40	93	31	151	0.9	110	28	156	0.7
27	27471	9300	9400	68	28	4	70	29	3	11.4	11.8	8	17	8	18	105	32	147	0.5	115	30	164	0.2
28	28218	9900	9700	54	40	6	58	40	2	9.7	10.6	13	26	10	20	115	29	150	0.6	120	28	150	0.7
29	32646	8000	8200	63	34	3	64	34	2	10.4	11	25	50	14	28	94	36	202	0.6	100	29	192	0.9
30	33828	7500	8100	58	40	2	57	39	4	11.2	12	15	32	7	14	94	22	116	0.6	118	21	132	0.7

BT – Before Treatment AT- After Treatment ESR – Erythrocyte Sedementstion Rate HB – Haemoglobin BS – Blood sugar BU- Blood urea

SC – Serum creatinine P-Polymorph L-Lymphocytes E – Eosinophils CH - Cholesterol

Blood Investigation of IP Patients

S.No	IP.No	WBC TOTAL		WBC DIFFERENTIAL COUNT (DC)						HB gms %		E.S.R. (mm)				BT				AT			
		BT	AT	BT			AT			BT	AT	BT		AT		B.S	B.U	CH	S.C.	B.S	B.U	CH	S.C.
				P	L	E	P	L	E	1 hr	1 hr	½hr	1hr	½hr	1hr								
1	2074	8400	8500	61	33	6	60	34	6	9.2	9.8	9	18	9	18	82	52	139	0.7	110	50	142	0.5
2	2556	9200	9200	64	31	5	62	22	8	9.5	10.2	12	25	8	16	92	34	152	0.9	98	32	150	0.7
3	3157	8800	8700	52	42	16	60	38	2	7.4	9.2	-	72	-	57	110	26	150	0.8	116	24	150	0.5
4	505	7900	8100	70	26	4	72	26	2	12	12	20	45	16	32	100	29	139	0.6	96	26	142	0.6
5	550	9400	9500	70	28	2	72	26	2	9.6	10	35	72	24	48	120	26	180	0.1	120	28	180	0.8
6	912	7600	7800	66	31	3	68	29	3	9.5	10.2	7	15	8	16	92	34	152	0.9	98	32	150	0.7
7	1304	8100	8400	70	26	4	70	28	2	9.6	10.2	30	62	18	32	80	28	182	0.8	110	40	180	0.9
8	1305	8200	8200	62	30	8	68	28	4	10.2	11	64	32	11	22	80	28	147	0.5	100	30	140	0.6
9	1309	7300	8000	71	24	3	65	33	2	10.5	12	12	42	11	22	100	12	100	0.9	110	22	150	0.9
10	1312	10600	9800	78	20	2	72	26	2	9.6	10	35	72	24	48	120	26	180	0.1	120	28	180	0.8

BT – Before Treatment AT- After Treatment ESR – Erythrocyte Sedementstion Rate HB – Haemoglobin BS – Blood sugar BU- Blood urea

SC – Serum creatinine P-Polymorph L-Lymphocytes E – Eosinophils CH - Cholesterol

URINE ANALYSIS OF OP PATIENTS

S.No	O.P. No	Albumin		Sugar		Deposit	
		BT	AT	BT	AT	BT	AT
1	11832	NIL	NIL	NIL	NIL	1-2 puscells	NIL
2	112002	NIL	NIL	NIL	NIL	NAD	NAD
3	112003	NIL	NIL	NIL	NIL	NIL	NIL
4	113813	NIL	NIL	NIL	NIL	Few pus cells	NAD
5	113814	NIL	NIL	NIL	NIL	NIL	NIL
6	11512	NIL	NIL	NIL	NIL	Few pus cells	NAD
7	1503	NIL	NIL	NIL	NIL	NAD	NAD
8	1504	NIL	NIL	NIL	NIL	Few pus cells	NAD
9	1963	NIL	NIL	NIL	NIL	5-10 pus cells	NAD
10	3091	Traces	NIL	NIL	NIL	Few pus cells	NIL
11	3144	NIL	NIL	NIL	NIL	NAD	NAD
12	6007	NIL	NIL	NIL	NIL	1-2 puscells	NAD
13	6008	NIL	NIL	NIL	NIL	NIL	NIL
14	6009	NIL	NIL	NIL	NIL	1-2 cells	NAD
15	6443	NIL	NIL	NIL	NIL	NAD	NAD

16	6444	NIL	NIL	NIL	NIL	1-2 puscells	NIL
17	7350	NIL	NIL	NIL	NIL	Few pus cells	NIL
18	7351	NIL	NIL	NIL	NIL	NAD	NAD
19	9720	NIL	NIL	NIL	NIL	NAD	NAD
20	9721	NIL	NIL	NIL	NIL	1-2 puscells	NIL
21	12153	NIL	NIL	NIL	NIL	1-2 pus cells	NIL
22	13269	NIL	NIL	NIL	NIL	NAD	NAD
23	13460	NIL	NIL	NIL	NIL	1-4 puscells	NIL
24	13461	NIL	NIL	NIL	NIL	NAD	NAD
25	14733	NIL	NIL	NIL	NIL	NAD	NAD
26	26206	NIL	NIL	NIL	NIL	1-2 epithelial cells	NIL
27	27471	NIL	NIL	NIL	NIL	NIL	NIL
28	28218	NIL	NIL	NIL	NIL	Few pus cells	NIL
29	32646	NIL	NIL	NIL	NIL	NAD	NAD
30	33828	NIL	NIL	NIL	NIL	1-2 pus cells	NIL

URINE ANALYSIS OF IP PATIENTS

S.No	I.P. No	Albumin		Sugar		Deposit	
		BT	AT	BT	AT	BT	AT
1	2074	NIL	NIL	NIL	NIL	-	NAD
2	2556	NIL	NIL	NIL	NIL	NAD	NIL
3	3157	NIL	NIL	NIL	NIL	NIL	NAD
4	505	TRACES	NIL	NIL	NIL	1-2 puscells	NIL
5	550	TRACES	NIL	NIL	NIL	1-5 puscells	NAD
6	912	NIL	NIL	NIL	NIL	Few puscells	NIL
7	1304	NIL	NIL	NIL	NIL	1-2 Epithelial cells	NAD
8	1305	NIL	NIL	NIL	NIL	NAD	NAD
9	1309	NIL	NIL	NIL	NIL	2-4 pus cells	NIL
10	1312	NIL	NIL	NIL	NIL	NAD	NAD

DISCUSSION

Psoriasis is a common, chronic and non infectious skin disease characterized by well defined slightly raised, dry erythematous macules with silvery scales and typical extensor distribution.

It can have a profound social impact of life difficulties in the work place, socialization with family members and friends, exclusion from public facilities and getting a job are some of the psycho social impact.

The major clinical features are itching, scaling, erythema, auspitz, sign with this background, the disease Psoriasis is taken for the study.

To gratifying the most important intend of this study, the trial drugs given below was used in treating the disease psoriasis. They are

1. ***OMA LEGIYAM*** as a internal medicine.
2. THAGARAI LEBAM as a external medicine.

A thourough study of the disease psoriasis was done and it is interrelated with signs and symptoms of psoriasis indicated in the siddha literatures.

To achieve the primary goal of this, a complete open clinical trial was done by treating the disease psoriasis with trial drugs.

The clinical appraisal was done as per the protocol and the data were collected by using prescribed forms. The disease psoriasis was studied under various criteria it fullfil secondary objective of the study and the results were pragmatic and tabulated.

The assorted criteria and the results were discussed here under.

Gender distributions

Out of 40 cases, entered in tabulation, 26 cases were male and 14 were cases female.

Hence it comes to interference that prevalence may be high in males.

However men reported greater due to work related stress. Hence its correlated with research studies. (MADUKKAA GUPTA 2007 VOL 34 700-703).

Age distribution

From the above study it came to know, the incidence of this disease is high in age group 41 to 50 when compared to other age groups.

Hence it infers, the result shown in my study is more or less equal to the global epidemiological studies. Paris et al.(2012), Raval 10(2):189-96.

Kaalam distribution

From the above study, it infers that the disease in highly prevalent in pitha kaalam, when compared to other kaalams.

Occupational status

From the above data it was clear that there was no connection between the occupational status and the Psoriasis incidence.

Luigi Naadi M.X et al(2007) also accepted the same result in his study.

Dietary Habits.

Out of the 40 patients selected among them 35 were non vegetarian and 5 of them were vegetarian.

Seasonal variations

Among the 40 patients selected, the disease had occured in munpani kaalams when compared to other kaalams.

It is evident from the tome "Practice of dermatology".

According to the above mentioned data 55% of cases came in munpanikaalam, 27.5% cases Pinpanikaalam.

Thinai

From the above mentioned data, 34(85%) cases were from Marutham and 6(15%) cases were from Neithal thinai.

Hence the disease was studied in single area not globally, so its difficult to come to conclusion by this above data for evaluating the thinai distribution scientifically.

Socio economic status

From the above data, 50% are from low socio economic status (poor) 37.5% were middle and 12.5% were in rich. There is no accurate evidences for correlation between psoriasis and socio economic status but as per research evidences by exposure to antigenic surfaces result in higher prevalence of psoriasis. Therefore peoples from low socio evonomic status were easily exposed to antigenic exposure due to infection so they have high prevalence of psoriasis.

Mode of onset

From the above tabulation it shows that's 100% of the cases were reported to be have chronic onset. The above result coincides. with tome "Text book of dermatology". Hence it inferes that these disease is a chronic onset.

Clinical features

According to this study, 100% of them had scaling, positive auspitz sign, koebner's phenomenon, 100% patients had itching, (which is correlated with the study research gerald kruegae Arch Decmatol 2001) and 12.5% of patients had joint involvement, 50% of them had nail changes and candle greese sign. Petty at et.al.J AM Acad Decmatol 2003. Radtke AM et.al. This infers that joint involvement in this studies coincides with reaserch studies.

Disturbances in kanmenthiriums

Among 40 patients kaal have been affected in 13 cases and eruvai have been affected in 7 patients and 15 cases affected in kai kanmenthirium.

Distribution of three thodams

a. Vadham

From the above tabulation, samanan, viyanan are pretentious in 100% of cases and abanan were affected in 17% of cases and uthanan were affected 20% of cases.

b. Pitham

Ranjagam and Prasagam were affected in 100% cases, Saathagam were in affected in 32.5% cases.

c. Kahbam

Santhigam was affected 5 cases and avalambagam are pretentious in 62.5% cases.

Udal kattugal

From the seven udal kattugal, saaram, seneer have been affected in all of the 40 cases enbu and kozhuppu have been affected 12.5% of cases.

Envagai Thervugal

Among the 40 cases, sparisam, niram and naadi have been affected in all cases white malam have been affected in 7 patients.

In naadi, pitha vatham were present in 15 cases (37.5%), vadha pitham 8 were present in cases (20%) Pitha kabham were present in 17 cases (42.5%).

Investigations

Laboratory investigations were done in all the cases before and after treatment, The significant variation occur in parameters like ESR and HB, while other parameteres have insignificatn variation.

Pre clinical studies

The biochemical study of ***OMA LEGIYAM*** had revealed the presence of Iron(ferrous), starch, tannic acid, unsaturated compounds reducing sugar and amino acid.

Pharmacological studies

The pharmacological studies done in ***OMA LEGIYAM*** revealed the presence of actions such as

1. Anti inflammatory action
2. Anti histamin action

Toxicity studies

Acute toxicity studies have done for ***OMA LEGIYAM*** in rats and it is analyzed that they have no toxicity.

Line of treatment

According to our humoral pathology, three dosham are deranged in all diseases. Therefore the line of tretment starts with regularize the deranged vadham for psoriasis to normalize the deranged vadha kutram purgative had to be given. So the purgative vellai ennai – 15ml were given to all 40 patients while be beginning the treatment.

Next day trial drug ***OMA LEGIYAM*** – 5.1g (Bd) was given along with external medicine.

THAGARAI LEBAM -10g (external) for 15 for patients i.e. 13 OP and 2 IP.

While another 25 patients i.e.17 OP and 8 IP trial drug along with complement therapies Pranayamam, asanas were given.

During the treatment period the patients are strictly advised to follow dietary regimen to overcome the adverse effect of trial drug given and also for earlier prognosis.

Clinical outcome

The clinical outcome was assessed by signs of psoriasis (Auspitz sign, koebner's phenomenon, candle grease sign) plaques, itching, erythema, scaling and these are classified into four grades described above.

According to that gradations

1. 67.5% had Good improvement
2. 20% had moderately improved
3. 7.5% had mild improved and
4. 5% had no improvement

There is no adverse affect observed while giving the trial medicines.

SUMMARY

The disease psoriasis was reasonably studied with the disease kalanjaga padai with reference to its causes. Pathogenesis and clinical features.

The aim of this study is to treat the illness and sufferings of Psoriasis. psoriasis is a common and distressing skin condition. Importantly, it is not simply a cosmetic problem- even people with limited disease find the condition affect their everyday lives (stern Rs.et.al.2004-9(2) 136-39).

The trial medicines are prepared as per siddha literature.

The trial medicines were

1. ***OMA LEGIYAM*** 5.1g (B.d)
2. THAGARAI LEBAM (external)

The trial drug was given to 40 patients, for 48 days. The patients was selected based on inclusion and exclusion criteria.

While starting the treatment routine blood analysis, urine analysis, kidney function test and liver function test were done. Siddha methods like udal thathukkal, Envagai thervu, Neerkuri and Neikuri were noted in case sheet proforma.

Patients were instructed to come for next review once in 7 days.

Age

Most of the patients are from the age group (41-50)

Thinai

Most of the patients were from marutham thinai.

Occupation

The Coolie workers are mostly affected by Psoriasis. Stress is also a major triggering factor for Psoriasis.

Diet and Physical habits

Most of the patients were non vegetarians and smoke may also have a major impact on Psoriasis.

Udal kattugal

From the seven udal kattugal, saaram, seneer have been affected in all of the 40 cases enbu and kozhuppu have been affected 12.5% of cases.

Pre clinical studies

The pharmacological analysis of ***OMA LEGIYAM*** shows that these medicines have

1. Anti inflammatory effect
2. Anti histaminic effect

Result the clinical outcome was assessed by gradations.

Hence the result shows that 67.5% had good improvement.

Particularly the results were marvelous when it is given trial drug along with complement therapies.

CONCLUSION

KALANJAGAPADAI (PSORIASIS) is primarly due the derangement of vadham. The trial medicine "***OMA LEGIYAM***" predominates with kaippu taste respectively neutralizes the vatham.

Preclinical studies shows that these medicines have anti inflammatory and anti histamine, effect and moderate analgesic effect.

The "***OMA LEGIYAM*** do not produce any toxicity in preclinical study. So it is not toxic and safe drug for psoriasis.

No contraindications were reported during the course of treatment.

The overall outcome of this disease is astounding. The clinical signs in this study were found to have 67.5% good improvement. When trial medicines are given along with complement therapy were found to have wonderful effect compared to giving trial medicines alone.

Therefore the author concluded that the trial medicine "***OMA LEGIYAM***" is very positive remedy for "Kalanjagapadai".

ASSESSMENT OF RESULTS

CLASSIFICATION OF PSORIASIS BASED ON THE SEVERITY OF SYMPTOMS

SYMPTOM

1	Severe	marked plaque elevation, scaling and or crythema, affecting more than 10% of the body surface.
2.	Moderate	Moderate plaque elevation, scaling and erythema /affecting 3-10% of the body surface
3	Mild	Slight plaque elevation, scaling and or erythema/affecting less than 3% of the body surface.
4	Clear	No signs of psoriasis.

- F Alzeni et al.(2011)

OVERALL RESULTS AFTER TREATMENT

Based on the outcome, all the 40 patients have been classified into 4 grades. The gradation is as follows,

Grade I (Good Improvement) – No signs of psoriasis (Post inflammatory hyper pigmentation may be present).

Grade II (Moderate improvement) – Slight plaque elevation reduction in size of all lesions, mild scaling. Itching and/or erythema.

Grade III (Mild Improvement) – No new lesions, moderate plaque elevation, scaling, Itching and/or erythema.

Grade IV (No Improvement) – Very marked plaque elevation, scaling, Itching and/or erythema with or without new lesions.

OP. NO. 3144 PATIENT NAME : KASTHURI AGE : 41/F

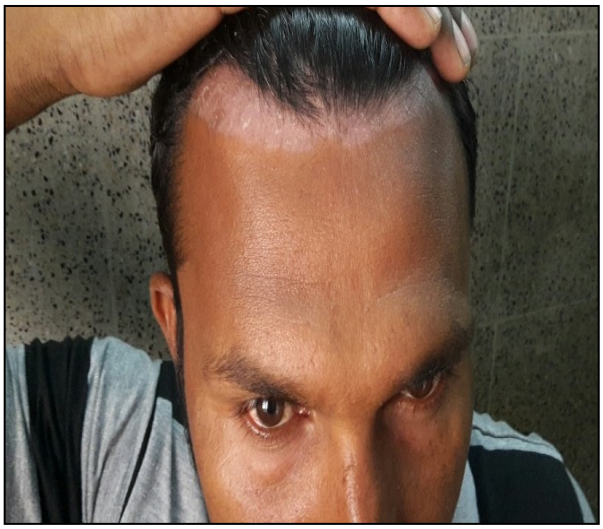
BEFORE TREATMENT

AFTER TREATMENT

IP. NO. 2074 PATIENT NAME : BALASUBRAMANIAM AGE : 40/M

BEFORE TREATMENT **AFTER TREATMENT**

OP. NO. 11832 PATIENT NAME : SABARI AGE : 33/M



BEFORE TREATMENT **AFTER TREATMENT**

ANNEXURE – I

PREPARATION OF TRIAL MEDICINES

STANDARD OPERATING PROCEDURE FOR PREPARATION OF *OMA LEGIYAM* (Internal) AND THAGARAI LEBAM (External).

Source of Raw drugs

The required drugs for preparation of ***OMA LEGIYAM*** **(Internal)** and **THAGARAI LEBAM (External)** are purchased from a well reputed country shop and raw drugs were authenticated by medical botanist of Government Siddha medical college, palayamkottai, then purified and the medicines were prepared in the gunapadam laboratory of Government Siddha medical college, palayamkottai.

PURIFICATION OF INGREDIENTS OF INTERNAL MEDICINE

1. Omam

It is made free of dust, dried and fried with heat.

2. Amukkura kizhangu

Roots are washed with water and made mud free

3. Kukil

It is boiled in tender coconut and dried

4. Parangi pattai

It is boiled in milk and dried.

5. Karboga arisi

It is dried and fried with heat.

Internal medicine

INTERNAL MEDICINE: OMA LEGIYAM

Ingredients :

S.NO.	**INGREDIENTS**	**BOTANICAL NAME**	**QUANTITY**
1	Omam	Trachyspermum roxburghianum	100 palam (3.5kg)
2	Sarkarai	Jaggery	10 palam (350gm)
3	Amukkra Kizhangu	Withania somnifera	35gm
4	Kukkil	Shorea robusta	35gm

5	Parangipattai	Smilux china	35gm
6	Karboha arisi	Psoralia corrylifolia	35gm
7	Neer	Water	21.5 lit

Preparation:

Purified raw drug is taken and powdered then it is filtered using pure white cloth.

The omam is maked kasayam and then added to Naatu sarkarai to make semi fluid form then added to chooranam is added to Naatusarkarai semi fluid and make legium form.

Dosage

Kalanju (5.1g) – Morning and night.

Indication

It is indicated internally for psoriasis.

Drug storage

The trial drug is stored in clean dry air tight container as glass bottles.

EXTERNAL MEDICINE: THAGARAI LEBAM

Ingredients:

S.NO.	INGREDIENTS	BOTANICAL NAME	QUANTITY
1	Thagarai ilai	Cassia tora	20gm
2	Vaividangam	Embelia ribes	20gm
3	Vetpalaipattai	wrightia tinctoria	20gm
4	Senkaluneer kizhangu	Nymphaea alba	20gm
5	Maramanjal	Coscinium fenestratum	20gm
6	Kondrai kolunthu	Cassia fistula	20gm
7	Kodiveli ver	Plumbago indica	20gm
8	Manjal	Curcuma longa	20gm
9	Erukkam ver	Calotropis gigantia	20gm
10	Kostam	Costus speciosus	20gm
11	Nelli paruppu	Phyllanthus emblica	20gm
12	Karboga arisi	Psorallea corylifolia	20gm

Method of Preparation:

Purified raw drugs are make powder mixed with Cow's urine then apply externally.

Indication

It is indicated externally for psoriasis.

Drug storage

The trial drug is stored in clean, dry and air tight container as narrow bottles.

OMA LEGIYAM – INGREDIENTS

(INTERNAL MEDICINE)

ஓமம்

அமுக்கிரா கிழங்கு

குக்கில்

பறங்கிப்பட்டை

கார்போகரிசி

சர்க்கரை

தேன்

OMA LEGIYAM

THAGARAI LEBAM – INGREDIENTS

(EXTERNAL MEDICINE)

தகரை

வாய்விடங்கம்

செங்கழுநீர்கிழங்கு

மஞ்சள்

வெட்பாலை

மரமஞ்சள்

கொன்றைகொழுந்து

கொடிவேலி

எருக்கன் வேர்

கோஷ்டம்

நெல்லிபருப்பு

கார்போகரிசி

THAGARAI LEBAM

Cow Urine

PROPERTIES OF TRIAL DRUGS

Internal Medicine

1. ஓமம்

வேறுபெயர்கள்

அசம்தாகம், அசம்தா ஓமம்

Botanical name : Trachyspermum roxburghianum

English name : Aprum involucreatum

Family : Apiaceae

சுவை : கார்ப்பு, சிறுகைப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

பயன்படும் உறுப்பு : வித்து

செய்கை

- Stomachic
- Carminative

Chemical constituents

Eugeno, Myristicin, Elemicin, Apiol, Sabinene, α-pinene, β – pinene, β- myrcene.

2. சர்க்கரை (Sugarcane)

Medicinal uses

- ❖ Decreased chance of diabetes
- ❖ Wound healing
- ❖ Fight of the common cold and flu.
- ❖ Organ strength
- ❖ Sugarcane is beneficial for cancer patient
- ❖ Beneficial for kidney stone patients
- ❖ Delay aging

3. அமுக்ரா

வேறுபெயர்

அமுக்கிரி, அசுவகந்தம், அசுவம், இருளிசெவி, கிடிச்செவி, வராககர்னி

Botanical name : Withania somnifera

English name : Winter cherry

Family : Solanaceae

சுவை : கைப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

Partused (பயன்படும் உறுப்பு)

இலை, விதை, வேர்(கிழங்கு)

செய்கை

கிழங்கு - Alternative, Aphrodisiac, Deobstruent, Diuretic, Tonic, Soporific,

Sedative.

குணம்

"கொஞ்சந் துவப்பாங் கொடியகயம் சூலையரி
மிஞ்சுகரப் பான்பாண்டு வெப்பதப்பு விஞ்சி
முசுவுறு தோடமும்போ மோகம்அன லுண்டாம்
அசுவகந் திக்கென் றறி".

- அகத்தியர் குணவாகடம்

Chemical constituents

Alkaoids, Streoidal lactones, withanolides, withaferin A, tropine

4. குக்கில்

வேறுபெயர்கள்: குங்கிலியம், குக்குலு, குக்கில், குக்கிலியம்

Botanical name - Shorea robusta

English name - Sal tree

Family - Burseraceae

சுவை - கைப்பு

தன்மை - வெப்பம்

பிரிவு - கார்ப்பு

Part used (பயன்படும் உறுப்பு): பிசின்

செய்கை

Stimulant

Expectorant

Diuretic

குணம்

“பெரும்பாடு மேகம்போம் பேரா துடளல்

அரும்பிய புண் ணாறுமிவை யல்லால் - குரும்பாம்

எலும்புருக்கி புண்சீழும் ஏகும் உலகில்

சலம்பருகுங் குங்கிலயத் தால்”

- அகத்தியர் குணவாகடம்

Chemical constituent

Alkaloids, flavinodis, Terpenoids, Resins, Tannins.

5. பரங்கிப்பட்டை

வேறுபெயர்கள் : மதுஸ்மிகம், மதுஸ்மீகி, சினப்பட்டை, பறங்கிச்சக்கை

Botanical name : Smilax china

English name : China root

Family : Liliaceae

சுவை - இனிப்பு

தன்மை - தட்பம்

பிரிவு - இனிப்பு

Part used (பயன்படும் உறுப்பு): கிழங்கு

செய்கை

Alterative

Anti syphlitic

Aphrodisac

Depurative

குணம்

"தாகம் பலவாதந் தாதுநட்டம் புண்பிளவை
மேகங் கடிகிரந்தி வீழ்மூலந் - தேகமுடன்
குட்டை பகந்தமேற் கொள்வமனம் போம்பறங்கிப்
பட்டையினை யுச்சரித்துப் பார்"

- தேரன் குணவாகடம்

Chemical cosntituents

7-0-beta-D-gluco pyranoside, engeletin, isoengeletin, kaempferol, rutin, vanillic acid.

6. கார்போக அரிசி

Botanical Name	:	Psoralea corylifolia
வேறுபெயர்கள்	:	கார்புவா அரிசி, பாகுசி, காப்புவா அரிசி
Family	:	Fabaceae
சுவை	:	கைப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு
Part used	:	Grains or seeds

செய்கை

Laxative

Stimulant

குணம்

"கார்போக மாமரிசி கண்டாற் கரப்பான்புண்
பீர்சகுவ நஞ்சிவை போம் பித்தமுண்டாம் - பார்மீதில்
வாத கபநபைச்சல் வன்சொறிசிரங்குமறுஞ்
சீத மார்க்குழலாய் செப்பு."

Chemical constituents

A compounds isoflavin, conylinin, isopsoralen, psoralen, sophoracoumestan A, neobavaisoflavone, daidzin, uracil are present.

It has antioxidant, anti inflamatory, antidepresent antimicrobial, antitumour and osteoblastic activity are present.

7. நெய் (Cow's ghee)

Medicinal uses of Ghee

- ❖ It gives energy and weight management
- ❖ Digestion and immune strengthening
- ❖ Provide healthy digestive treat
- ❖ Provide healthy immune system
- ❖ Anti-inflammatory and anti cancer
- ❖ Gives strong appetite

8. தேன் (Honey)

Medicinal uses of honey

- ❖ Heals chronic ulcers
- ❖ Provide anti bacterial activity
- ❖ Cures common cold
- ❖ Having antidiabetes activity
- ❖ Helps prevent cancer and heart disease
- ❖ Heals wound and burns
- ❖ Increase anthelmintic performance
- ❖ Reduces cough and throat irritation.

EXTERNAL MEDICINE

1. தகரைவிதை

வேறுபெயர் - நாரத்தகரை

Botanical name - Cassia tora

English name - Foetid cassia

Family - Fabaceae

சுவை - கைப்பு, உவர்ப்பு

தன்மை - வெப்பம்

பிரிவு - கார்ப்பு

பயன்படும் உறுப்பு - இலை, வேர், விதை

செய்கை

- Aperient
- Germicide
- Febrifuge

குணம்

"தகரைப் படர்தா மரையைச் சொறியைத
தகர வடிக்குமந்தந் தன்னோ – டிகலான
சுத்தி சுரத்தையும் தஞ்செய்பு மிம்மூள
யுத்தமமா மென்றே யுரை".

- அகத்தியர் குணவாகடம்

Chemical constituents

Anthroquinones, ennodin, obtusin, obtusifoline, glycosides.

2.வாய்விளங்கம்

வேறுபெயர்கள் : கேரளம், வாய்விலங்கம், வர்னனை, வாய்விடங்கம்

Botanical name : Embelia ribes

English name : Emebelia

Family : Myrsinaceae

சுவை : கைப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

பயன்படும் உறுப்பு : விதை

செய்கை

- Anthelmintic
- Carminative
- Stomachic
- Stimulant

குணம்

"வாதகுரு வாயுடம்பு வாதமறுத் தப்படியே
வேதையுலோ கங்களிலே வேண்டினாற் - பாத
விரதமுதற் கையாட வென்றா விசையும்
வர்னனை நீமனத்தில் வை."

Chemical constituents

Embelin, volatile oil, resin, tannin, phenolic acid, vanillic acid, chinamic acid.

3. வெட்பாலைப்பட்டை

வேறுபெயர்கள் : கிரிமல்லிகை, குடசம், வற்சம்

Botanical name: wrightia tinctoria

English name : Pala indigo plant

Family : Apocynaceae

சுவை : துவர்ப்பு, இனிப்பு, சிறுகைப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

பயன்படும் உறுப்பு : இலை, பட்டை, வித்து

செய்கை

- Aphrodisiac
- Astringent

குணம்

"அக்னியை வைத்திருக்கு மார்ந்தவா தம்போக்குந்
திக்குடிரி தோடத்தை தீர்ந்துவிடும் - சொக்கவிடு
கட்பாலைக் கூற்றைவைத்த தான மடமயிலே!
வெட்பாலை நன்மருந்தாம் விள்."

- அகத்தியர் குணவாகடம்

Chemical constituents

Lipid, saponin, lannins, alkaloids, phenols, steroids, flavinoids.

4. செங்கழுநீர்கிழங்கு

வேறுபெயர்கள் : உற்பலம், குவளை, குவலயம், செங்கழுநீர்

Botanical name : Nymphaea alba

English name : Water lily

Family : Nymphaeaceae

சுவை - இனிப்பு

தன்மை - தட்பம்

பிரிவு - இனிப்பு

பயன்படும் உறுப்பு - முழுவதும்

செய்கை

- Antiseptic
- Refrigerant

குணம்

"உடற்குக் குளிர்ச்சியதா முள்ளுழலை மாற்றும்
அடற்கபவ ரோகத்தை யாற்றும் - கடற்குள்
எழுநீர்க் குமிழி யிகழு முலையாம்
கழுநீர் மலரெனவே காண்"

- அகத்தியர் குணவாகடம்

Chemical consitituents

Alkaloids, glycosides, flavinoids, glycosides, Tannins, lignans, phytosterols, triterpene saponins.

5. **மரமஞ்சள்**

வேறுபெயர்கள் : காலேயகம், தாறுவி

Botanical name : Coscinium fenestratum

English name : Tree turmeri

Family : Menispermaceae

சுவை - கைப்பு

தன்மை - வெப்பம்

பிரிவு - கார்ப்பு

பயன்படும் உறுப்பு - சக்கை

செய்கை

- Febrifuge
- Stomachic
- Tonic

குணம்

"அழன்றகண மூலம் அருசி யுடனே.

உழன்ற கணச்சுரமும் ஓடுஞ் - சுழன்றுள்ளே

வீறுசுர முந்தளையும் வீசுமர மஞ்சளுக்குத்

தேறு மொழியனமே செப்பு."

- அகத்தியர் குணவாகடம்

Chemical constituents

Alkaloids, Ceryl-alcohol, Saponine, Sitosterol, glucoside, palmitic acid, oliec acid.

6. கொன்றைகொழுந்து

வேறுபெயர்கள்

கொன்றை, தாமம், மதலை, இதழி, ஆக்குவதம்.

Botanical name : Cassia fistula

English name : Indian ladurnam

Family : Caesaepiniaceae

சுவை : துவர்ப்பு, விறுகைப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

பயன்படும்உறுப்பு : இலை, பூ, புளி, விதை, பட்டை

செய்கை

Laxative, vermifuge

குணம்

"பாண்டரங்கர் பூணாய்ப் பறக்கடித்து மேகத்தை
யாண்டாங்கக் கைகுள்வச மாக்குமே – காண்
குதவிசில செய்துடலை யோம்புமிது நீபார்
இதழிரயனுங் கொன்றைபுவி யில்."

- தேரன் வெண்பா

Chemical constituents

Carbohydrates, Linouic, oleic and stearic acid, oxalic acia, Tannins, anthroquinones, Glycosides fistulic acia & flavinoids.

7. கொடிவேலி

Botanical name	:	Plumbago zeylanica
வேறுபெயர்	:	வெண்சித்திரமூலம், வெண்கொடிமூலம்
Family	:	Plumbaginaceae
சுவை	:	கார்ப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு
Part used	:	Root

செய்கை

- Antiperiodic
- Diaphoretic

குணம்

"கட்டிவிர ணங்கிரந்தி கால்கள் அரையாப்புக்
கட்டிச்சூ லைவீக்கங் காழ்மூலம் முட்டிரத்தக்
கட்டுநீ ரேற்றங் கனத்த பெருவயிறும்
அட்டுங் கொடிவேலி யாம்."

Chemical constituents

It has isoschinanolone, plumbagic acid, beta-sitosterol, 4-hydroxybenzaldehyde, Trans cinnamic acid, vanillic acid, 2.5 dimethyl 7 hydroxychromone, indole – 3 carbonaldehyde are present.

It has anticonvulsant, hepatoprotective activity

8. மஞ்சள்

வேறுபெயர்கள் : அரிசனம், கான்சனி, நிசி, பீதம்

Botanical name : Curcuma longa

English name : Turmeric

Family : Zingiberaceae

சுவை - கார்ப்பு, கைப்பு

தன்மை- வெப்பம்

பிரிவு - கார்ப்பு

பயன்படும் உறுப்பு - கிழங்கு

செய்கை

- Carminative
- Stimulant
- Hepatic tonic

குணம்

"பொன்னிறமாம் மேனி புலானாற்ற மும்போகும்
மன்னு புருட வசியமாம் - பின்னியெழும்
வாந்திபித்த தோடமையம் வாதம்போந் - தீபனமாங்
கூர்ந்தமஞ்ச ளின் கிழங்குக்கு"

- அகத்தியர் குணவாகடம்

Chemical constituents

Phenolic compound and terpenoids, mono, di and triterpenoids, alkaloids, sterols.

9. எருக்கம்வேர்

வேறுபெயர் : அருக்கன்

Botanical name : Calotropis gigantea

English name : Mudar

Family : Asclepiadaceae

சுவை : கைப்பு, காரம், மதுரம்

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

பயன்படும் உறுப்பு

இலை, பூ, பால், பட்டை, வேர்.

குணம்

இல்லை

செய்கை

Febrifuge, Alterative, Stimulant, Tonic, Diaphoetic, Emetic.

Chemical constituents

Wax and resin present in Stembark.

Triterpene alcohols

Valatile fatty acid.

10.கோஷ்டம்

Botanical name	:	Saussurea lappa
வேறுபெயர்	:	கோட்டம், குரா ஒலி
Family	:	Asteraceae
சுவை	:	கைப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு
Part used	:	Root, Rhizome

செய்கை

- Stomachic
- Expectorant
- Tonic
- Stimulant
- Diaphoretic

குணம்

நாட்டிலுறு வெட்டை நடுக்கம் எனுநோய்கள்
கோட்டமெனச் சொன்னால் குலையுங்காண் - கூட்டிற்
சுரதோடந் தொண்டைநோய் தோலாத பித்தம்
பரதேசம் போமே பறந்து.

Chemical constituents

Diosgenin, Tigogenin, dioscin, gracillin, β-sitosterol glucoside.

The seeds contain fatty acids. It contain palmtic stearic, oleic, linoleic, arachidic acids are present.

11.நெல்லிபருப்பு

வேறுபெயர்கள் : ஆமலகம், ஆலகம், ஆம்பல், மீதுந்து

Botanical name : Phyllanthus emblica

English name : Indian Goseberry

Family : Euphorbiaceae

சுவை : புளிப்பு, துவர்ப்பு, இனிப்பு

தன்மை : தட்பம்

பிரிவு : இனிப்பு

பயன்படும் உறுப்பு : முழுவதும்

செய்கை : Astringent

குணம்

"இல்லா மலக மிரண்டு மயின்றானே
யில்லா மலகமிருக்குமே - இல்லாமல்
வாழைக் கனியும் வடையுமிழுது முண்பான்
வாழைக் கனியுன் வைத்தவன்"

-தேரன் யமக வெண்பா

Chemical constituents

Two flavonoids and tannins

- Kaempferol 3-0-α-L-(6"-metheyl) rhamnopyranoside.
- Kaempferol 3-0-α-L-(6"-etheyl) rhamnopyranoside

12. கார்போகஅரிசி

Botanical Name : Psoralea corylifolia

வேறுபெயர்கள் : கார்புவா அரிசி, பாகுசி, காப்புவா அரிசி

Family : Fabaceae

சுவை : கைப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

Part used : Grains or seeds

செய்கை

Laxative

Stimulant

குணம்

“கார்போக மாமரிசி கண்டாற் கரப்பான்புண்
பீர்சுவ நஞ்சிவை போம் பித்தமுண்டாம் - பார்மீதில்
வாத கபநபைச்சல் வன்சொறிசிரங்குமறுஞ்
சீத மார்க்குழலாய் செப்பு.”

Chemical constituents

A compounds isoflavin, conylinin, isopsoralen, psoralen, sophoracoumestan A, neobavaisoflavone, daidzin, uracil are present.

It has antioxidant, anti inflamatory, antidepresent antimicrobial, antitumour and osteoblastic activity are present.

ANNEXURE - II

QUALITATIVE AND QUANTITATIVE ANALYSIS

BIO-CHEMICAL ANALYSIS OF *OMA LEGIYAM*

Preparation of the extract:

5gms of the drug was weighed accurately and placed in a 250ml clean beaker. Then 50ml of distilled water is added and dissolved well. Then it is boiled well for about 10 minutes. It is cooled and filtered in a 100ml volumetric flask and then it is make up to 100ml with distilled water. This fluid is taken for analysis.

QUALITATIVE ANALYSIS

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	**TEST FOR CALCIUM** 2ml of the above prepared extract is taken in a clean test tube. To this add 2ml of 4% Ammonium oxalate solution	No white precipitate is formed	Absence of calcium
2.	**TEST FOR SULPHATE** 2ml of the extract is added to 5% Barium chloride solution.	No white precipitate is formed	Absence of sulphate
3.	**TEST FOR CHLORIDE** The extract is treated with silver nitrate solution	No white precipitate is formed	**Absence of chloride**
4.	**TEST FOR CARBONATE** The substance is treated with concentrated Hcl.	No Brisk effervessence is formed	Absence of carbonate
5.	**TEST FOR STARCH** The extract is added with weak iodine solution	Blue colour is formed	**Indicates the presence of starch**

6.	**TEST FOR FERRIC IRON** The extract is acidified with Glacial acetic acid and potassium ferro cyanide.	No blue colour is formed	Absence of ferric iron
7.	**TEST OF FERROUS IRON** The extract is treated with concentrated Nitric acid and Ammonium thio cyanate solution	Blood red colour is formed	**Indicates the presence of ferrous iron**
8.	**TEST FOR PHOSPHATE** The extract is treated with Ammonium Molybdate and concentrated nitric acid	No yellow precipitate is formed	Absence of phosphate
9.	**TEST FOR ALBUMIN** The extract is treated with Esbach's reagent	No Yellow precipitate is formed	Absence of Albumin
10.	**TEST FOR TANNIC ACID** The extract is treated with ferric chloride.	Blue black precipitate is formed	**Indicates the presence of tannic acid**
11.	**TEST FOR UNSATURATION** Potassium permanganate solution is added to the extract	It gets decolourised.	**Indicates the presence of unsaturated compound**
12.	**TEST FOR THE REDUCING SUGAR** 5ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 mts and add 8-10 drops of the extract and again	Colour change occurs.	**Indicates the presence of Reducing sugar**

	boil it for 2 mts.		
13.	**TEST FOR AMINO ACID** One or two drops of the extract is placed on a filter paper and dried well. After drying, 1% Ninnhydrin is sprayed over the same and dried it well.	Violet colour is formed	**Indicates the presence of Amino acid**
14.	**TEST FOR ZINC** The extract is treated with Potassium Ferrocyanide.	No white precipitate is formed	Absence of Zinc.

Inference:

The given sample of "OMA LEGIUM" contains starch, ferrous Iron, tannic acid, reducing sugar, unsaturated compound and amino acid.

ANNEXURE – III

PHARMACOLOGICAL ANALYSIS

EFFECT OF OMA LEGHIYAM WITH HONEY/GHEE ON CARRAGEENAN-INDUCED LOCALISED INFLAMMATORY PAIN IN RATS

SUMMARY

The study plan was developed based on the guidelines of Vogel[1] and also it has reference to Chao Ma and Jun-Ming Zhang[2] and Walker et al. [3,] Winter CA, Risley EA, Nuss GW. Carrageenin induced edema in hind paw of the rat as an assay for anti-inflammatory drugs. Proc Soc Exp Biol Med. 1962;111:544–7.

Objective

To study the anti-inflammatory effect of **OMA LEGHIYAM** were prepared **WITH HONEY/GHEE** in the rat model of Carrageenan-induced localized inflammation.

Methods:

Test System

Species	:	Rat
Strain	:	Albino Wister
Age	:	6-8 weeks at the time of dosing
Total no. of Rats	:	24
Sex	:	Male
Weight	:	150 gm

The animals were housed in polypropylene cages with stainless steel top grills having facilities for holding pellet food and drinking water in bottle with stainless steel sipper tube. Each cage contained 6 rats. All rats had free access to potable water and standard pelleted laboratory animal diet *ad libitum*. Paddy husk was used as bedding material. The animals were divided into 5 groups (6 rats/group). Localized inflammatory pain was induced in all groups of animals by intraplantar injection of carrageenan (50 µl of 3% suspension).

One day before the experiment, three basal readings of hind paw in each rat were recorded. Group 1 received vehicle orally, Group 2 received a standard drug Diclofenac sodium (10 mg/kg i.p), whereas groups 3,4and 5 received **OMA LEGHIYAM**. The doses of **OMA LEGHIYAM** were prepared **WITH HONEY/GHEE**, whereas Diclofenac sodium was dissolved in normal saline. After 30 min, the rats were challenged with subcutaneous injection of 0.1 ml of 1% w/v solution of carrageenan into the sub plantar region of left paw. The paw was marked with ink at the level of lateral malleolus and immersed in mercury up to the mark. The paw volume was measured at 0, 1, 2, 3, 4, 5 and 6^{th} hr after carrageenin injection using Digital Plethysmometer. The difference between initial and subsequent reading gave the actual edema volume.

DOSAGE SCHEDULE:

The required dose for mice/rat will be calculated by using the standard dose calculation procedure from recommended clinical dose.

CONVERSION FORMULA:

Human dose is 6000 mg /kg day

Total clinical dose (a) x conversion factor (b) 0.018 = (c) per 150 gm of Rat

6000 mg x 2(a) x 0.018 (b) = 108 (c) /150 gm of Rat

108/1000x150 = 16.2 mg

Experimental Doses Calculated as per the standard procedures are

S.No	Groups	Dose /kg, weight	Volume of administration
1	Vehicle Control	--	1 ml
2	Therapeutic Dose	16.2 mg /kg	1 ml

3	Middle Dose	81mg/kg	1 ml
4	High Dose	405mg/kg	1 ml

EXPERIMENTAL DESIGN:

Group-I: Served as a negative control (0.1ml of 1% carrageenin)

Group-II: Served as standard received Diclofenac sodium (10mg/kg, i.p) +

(0.1ml of 1% carrageenin)

Group-III: Received **OMA LEGHIYAM** were prepared **WITH HONEY/GHEE**

(16.2 mg /kg) + (0.1ml of 1% carrageenin)

Group IV: Received **OMA LEGHIYAM** were prepared **WITH HONEY/GHEE**

(81 mg/kg) + (0.1ml of 1% carrageenin)

Group V: Received **OMA LEGHIYAM** were prepared **WITH HONEY/GHEE**

(405 mg/kg) + (0.1ml of 1% carrageenin)

TABLE: EFFECT OF OMA LEGHIYAM WITH HONEY/GHEE ON Carrageenin -INDUCED PAW EDEMA IN RATS (BODY WEIGHT in gms)

Group	**Control**	**Standard**	**LD**	**MD**	**HD**
INITIAL BODY WEIGHT	152±2.309	138.7±1.764	148.7±1.764	153±2.887	138±2

Values are expressed as the mean ± S.D. Statistical significance (p) calculated by one way ANOVA followed by dunnett's. ns- not significant $^{**}P< 0.05$ calculated by comparing treated group with control group

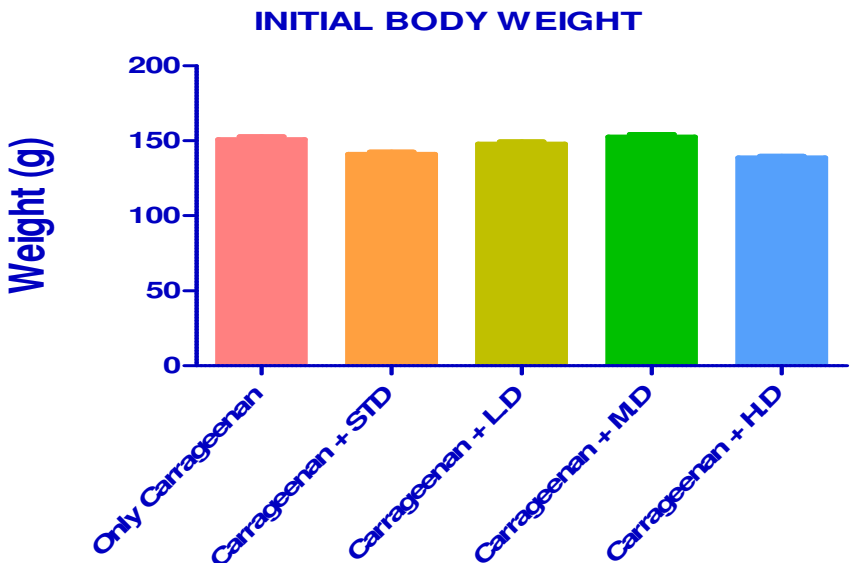


TABLE: EFFECT OF OMA LEGHIYAM WITH HONEY/GHEE ON Carrageenin -INDUCED PAW EDEMA IN RATS

Group	Mean paw volume before carrageenan injection	Paw Volume after induction with carrageenin Increase in paw volume (ml) after carrageenan injection (mean ± SEM)/Percent inhibition of edema						
	0 min	**30 min**	**1h**	**2h**	**3h**	**4h**	**5h**	**6h**
Control	3.83±0.18	**6.88**± 0.19	**7.18**±0.13	**7.42**±0.12	**7.55**±0.09	**7.40**±0.09	**7.15**±0.083	**6.92**±0.06
Standard	**3.60**±0.12	**6.88**± 0.15	**7.23**±0.15**	**7.37**±0.12**	**7.37**±0.06	**6.85**±0.14**	**6.66**±0.14*	**6.30**±0.09**
LD	**3.64**±0.11	**6.64**± 0.24	**6.83**±0.22	**7.30**±0.14*	**7.21**±0.09*	**6.99**±0.07*	**6.55**±0.14**	**6.26**±0.09**
MD	**3.89**±0.16	**6.93**± 0.25	**7.07**±0.22	**7.25**±0.17	**7.17**±0.10*	**6.99**±0.07*	**6.67**±0.10*	**6.27**±0.12**
HD	**4.17**±0.16	**6.90**± 0.17	**7.18**±0.14*	**7.38**±0.11**	**7.19**±0.09*	**6.84**±0.10**	**6.55**±0.12**	**6.55**±0.12**

Values are expressed as the mean ± S.D. Statistical significance (p) calculated by one way ANOVA followed by dunnett's. ns- not significant $^{**}P< 0.05$ calculated by comparing treated group with control group

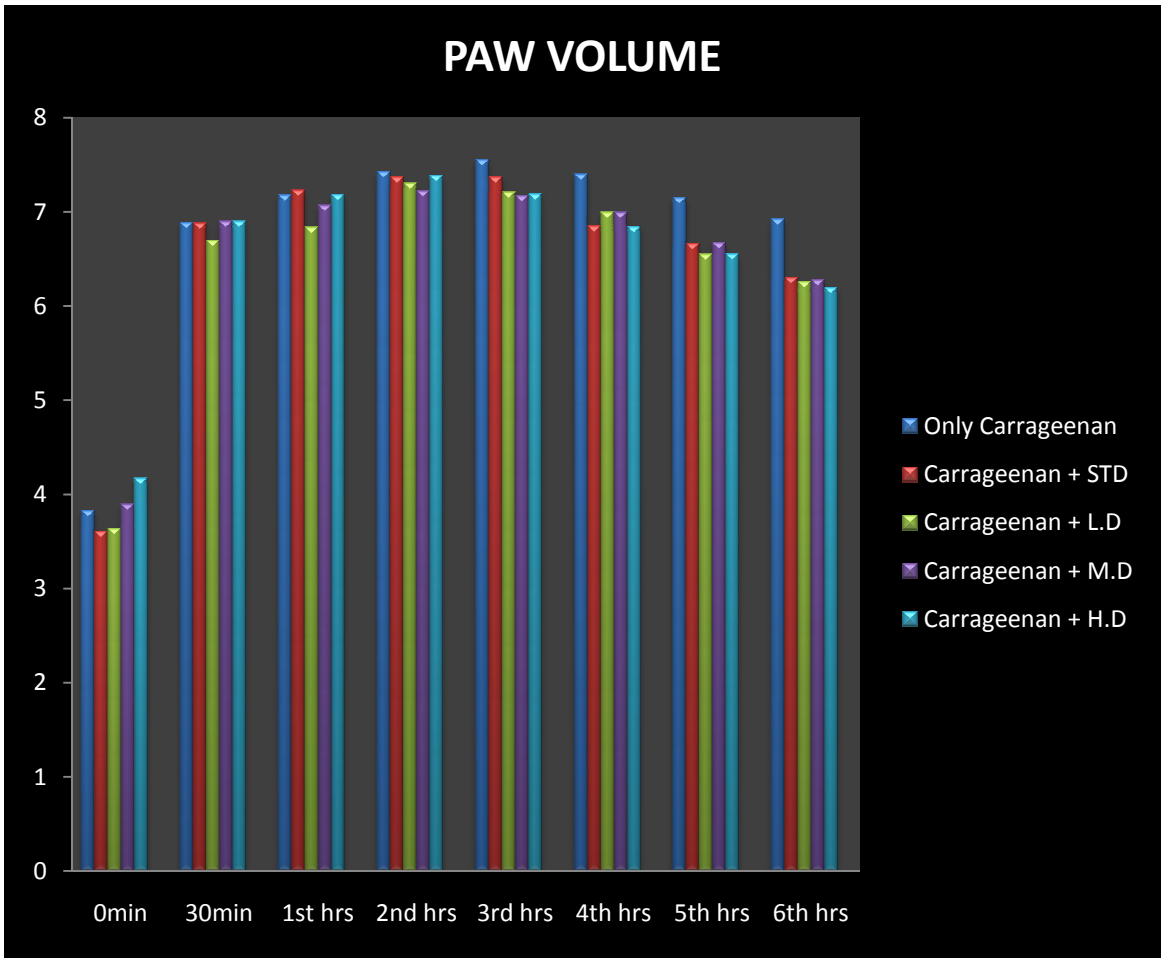

PAW VOLUME
8
7
6
5
4
3
2
1
0
0min
30min
1st hrs
2nd hrs
3rd hrs
4th hrs
5th hrs
6th hrs
Only Carrageenan
Carrageenan + STD
Carrageenan + L.D
Carrageenan + M.D
Carrageenan + H.D

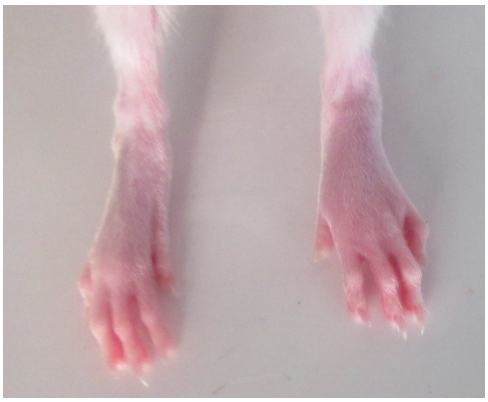
FIG: EFFECT OF OMA LEGHIYAM WITH HONEY/GHEE ON Carrageenin -INDUCED PAW EDEMA IN RATS

Only Carrageenin

Carrageenin+ STD

Carrageenin + L.D

Carrageenin + M.D



Carrageenin + H.D

EVALUATION OF SPASMOLYTIC ACTIVITY OF OMA LEGIUM WITH HONEY / GHEE ON GUINEA PIG ILEUM

AIM:

To study the effect of **OMA LEGIUM WITH HONEY / GHEE** on Guinea pig ileum

APPARATUS:

Organ bath, Oxygen delivery tube cum tissue holder, Isotonic frontal writing lever, Sherrington's recording drum, pinch cork, screw clip etc.

DRUGS USED: 1. **OMA LEGIUM WITH HONEY / GHEE** (1mg/ml)

2. Acetylcholine (1mg/ml)
3. Histamine (10µg/ml)

EXPERIMENTAL CONDITION

Physiological salt Solution : Tyrode

Composition of De Jalon sol

1. Nacl, **2**. Kcl

3. $NaHCO_3$**,** **4**. $Cacl_2$,

5. Glucose. **6**. $MgCl_2$ **7.** NaH_2PO_4

Temperature	:	37^0 C
Tension of lever	:	0.5gm
Magnification	:	10 times
Aeration	:	air

PROCEDURE:

1. The Guinea pig ileum (either sex) is sacrificed by a blow on the head and carotid bleeding.

2. The assembly is set up and the arrangements are made for above mentioned experimental conditions.

3. The Guinea pig ileum was sacrificed as per the CPCSEA recommended guidelines. The abdominal cavity was opened and cut and remove a few Centimetres long of the ileal portion were quickly separated and placed in the Petridish. The ileal was made free from adhering adipose and connective tissues.

4. One end of the tissue was tied to the aeration tube cum tissue holder and the other end was tied (after keeping in the organ tube) to the isotonic frontal writing lever.

5. The tissue was allowed to stabilize for about half an hour during which the tyrode of organ bath was changed after every 10min.

6. After the tissue was stabilized drugs were administered and the following cycle was followed:

0sec : Start the drum and record a base line

30 sec : Add the drug to the organ bath

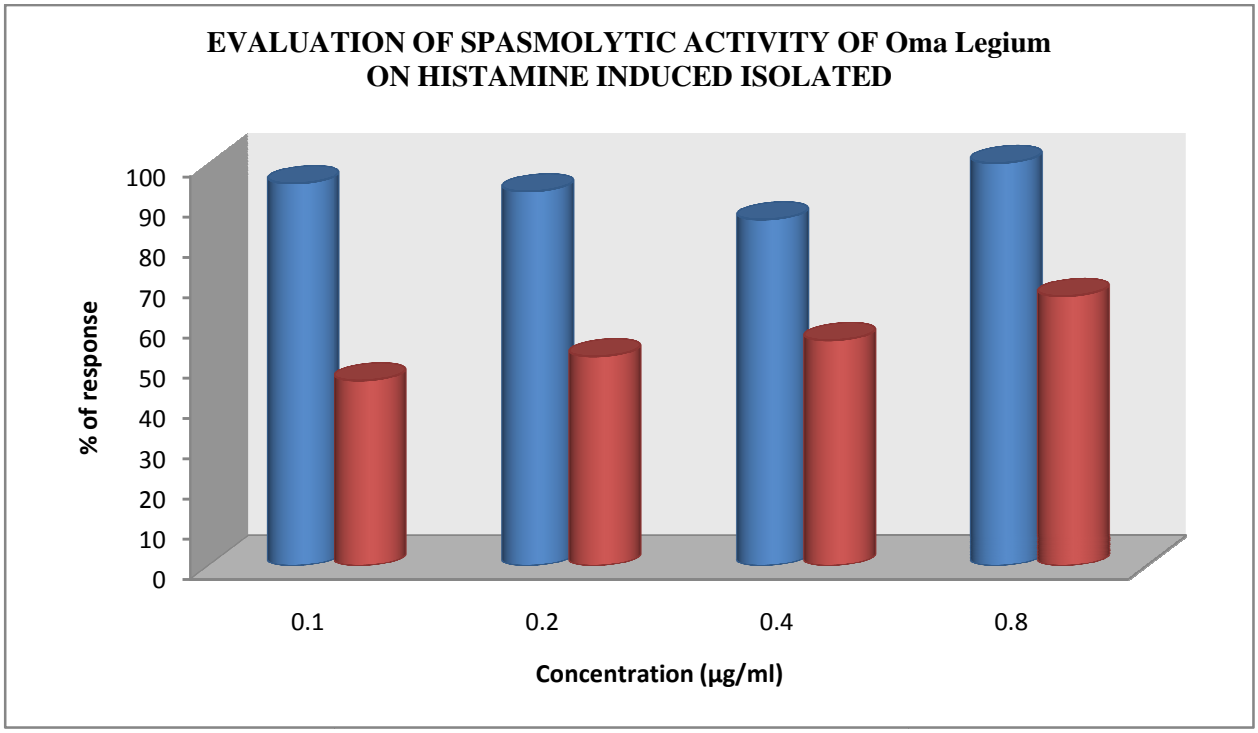
60 sec : Stop the drum and give a wash

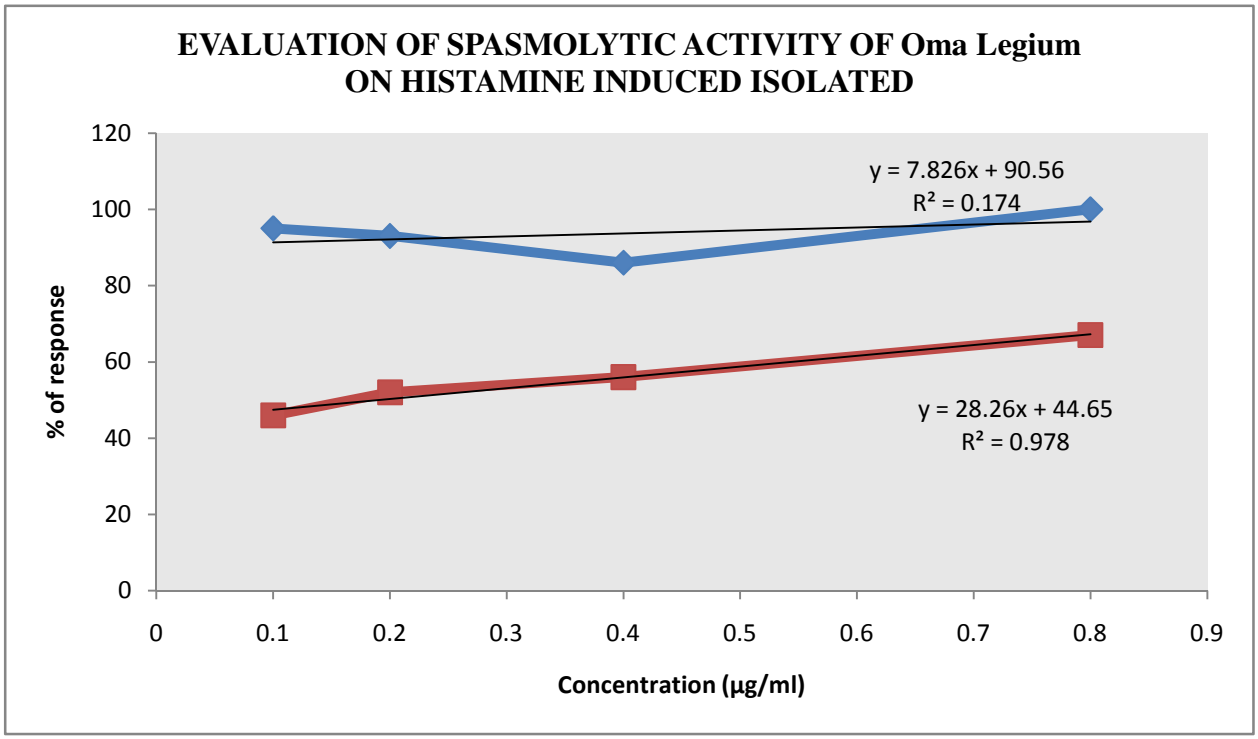
120 sec : Give a second wash

150 sec : consider as 0sec and repeat as 0

EVALUATION OF SPASMOLYTIC ACTIVITY OF OMA LEGIUM WITH HONEY / GHEE ON HISTAMINE INDUCED ISOLATED

Histamine			**Histamine +** ***OMA LEGIYAM***		
Concentration (µg/ml)	Height of response (cm)	% of response	Concentration (µg/ml)	Height of Response (cm)	% of response
0.1(µg/ml)	76	94.85%	0.1(µg/ml)	34	46%
0.2(µg/ml)	74	92.89.%	0.2(µg/ml)	39	52%
0.4(µg/ml)	68	85.95%	0.4(µg/ml)	44	56 %
0.8(µg/ml)	82	100%	0.8(µg/ml)	54	67%
	IC_{50} = 51.82 %			IC_{50} =18.93%	




EVALUATION OF SPASMOLYTIC ACTIVITY OF Oma Legium ON HISTAMINE INDUCED ISOLATED
120
100
80
60
40
20
0
% of response
y = 7.826x + 90.56
R² = 0.174
y = 28.26x + 44.65
R² = 0.978
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
Concentration (µg/ml)

ACUTE TOXICITY STUDY IN FEMALE WISTER RATS TO EVALUATE TOXICITY PROFILE OF OMA LEGHIYAM WITH HONEY/GHEE

Table 1. Test substance details

Name of the test substance	**OMA LEGHIYAM With Honey/Ghee**
Colour of the test substance	-Light brown
Nature of the test substance	Powder

Table 2. Experimental protocol

Name of the study	Acute toxicity
Guideline followed	OECD 423 method-acute toxic class method
Animals	Healthy young adult female wister rats, nulliparous, non-pregnant
Body weight	150-200 g
Sex	female
Administration of dose and volume	6000 mg/kg in 200g body weight, single dose in 1 ml
Number of groups and animals	5 groups and 3 animals in each group 1000,2000,3000,5000and 6000mg/kg
Route of administration	Oral Cavage (po)
Vechicle	Honey/Ghee

Table3. Housing and feeding conditions

Room temperature	22°C ± 3°C
Humidity	40-60%
Light	12 h : 12h (light : dark cycle)
Feed	Standard laboratory animal food pellets with water *ad libitum*

Table 4. Study period and observation parameters

Initial once observation	First 30 minutes and periodically 24 h
Special attention	First 1-4 h after drug administration
Long term observation	Upto 14 days
Direct observation parameters	Tremors, convulsions, salivation, diarrhea, lethargy, sleep and coma.
Additional observation parameters	Skin and fur, eyes and mucous membrane, respiratory, circulatory, autonomic and central nervous systems, somato motor activity and behavior pattern etc.

The time of death, if any, is recorded. (Complete observations: annexure I). After administration of the drug, food is withheld for a further 1-2 hours.

Study procedure

Acute oral toxicity was performed as per organization for economic co-operation for development (OECD) guideline 423 method. The **OMA LEGHIYAM with Honey/Ghee** was administered in a single dose by tuberculin syringe. Animals are fasted 3 h prior to dosing (food was withheld for 3 h but not water). Following the period of fasting animals was weighed and test substance was administered orally at a dose of 1000,2000,3000,5000 and 6000mg/kg. After the **OMA LEGHIYAM with Honey/Ghee** administration, food was withheld 2 h in mice. Animals are observed individually after at least once during the first 30 minutes, periodically during the first 24 hrs, with special attention given during the first 4 hrs, and daily thereafter, for a total of 14 days.

REPORT

Toxicological evaluation of OMA LEGHIYAM with Honey/Ghee

Table:5 Effect of **OMA LEGHIYAM With Honey/Ghee** on acute toxicity test in female rats.

S.N	Response	Head		Body		Tail	
		Before	After	Before	After	Before	After
1	Alertness	Normal	Normal	Normal	Normal	Normal	Normal
2	Grooming	Absent	Absent	Absent	Absent	Absent	Absent
3	Touch response	Absent	Absent	Absent	Absent	Absent	Absent
4	Torch response	Normal	Normal	Normal	Normal	Normal	Normal
5	Pain response	Normal	Normal	Normal	Normal	Normal	Normal
6	Tremors	Absent	Absent	Absent	Absent	Absent	Absent
7	Convulsion	Absent	Absent	Absent	Absent	Absent	Absent
8	Righting reflux	Normal	Normal	Normal	Normal	Normal	Normal
9	Gripping strength	Normal	Normal	Normal	Normal	Normal	Normal
10	Pinna reflux	Present	Present	Present	Present	Present	Present
11	Corneal reflux	Present	Present	Present	Present	Present	Present
12	Writhing	Absent	Absent	Absent	Absent	Absent	Absent
13	Pupils	Normal	Normal	Normal	Normal	Normal	Normal
14	Urination	Normal	Normal	Normal	Normal	Normal	Normal
15	Salivation	Normal	Normal	Normal	Normal	Normal	Normal
16	Skin colour	Normal	Normal	Normal	Normal	Normal	Normal
17	Lacrimation	Normal	Normal	Normal	Normal	Normal	Normal

RESULT:

From acute toxicity study it was observed that the administration of **OMA LEGHIYAM with Honey/Ghee** to Female Wister rats did not induce drug-related toxicity and mortality in the animals up to 6000mg/kg in 200g

female Wister rats. So No-Observed-Adverse-Effect- Level (NOAEL) of **OMA LEGHIYAM with Honey/Ghee** is 6000 mg/kg equal to human dose

DISCUSSION

OMA LEGHIYAM with Honey/Ghee was administered single time at the doses of 1000,2000,3000,5000 and 6000mg/kg to female Wister rats and observed for consecutive 14 days after administration. Doses were selected based on the pilot study and literature review. All animals were observed daily once for any abnormal clinical signs. Weekly body weight and food consumption were recorded. No mortality was observed during the entire period of the study. Data obtained in this study indicated no significance physical and behavioral signs of any toxicity due to administration of **OMA LEGHIYAM with Honey/Ghee** at the doses of 1000,2000,3000,5000 and 6000mg/kg to female Wister rats

At the 14th day, all animals were observed for functional and behavioral examination. In functional and behavioral examination, home cage activity, hand held activity were observed. Home cage activities like Body position, Respiration, Clonic involuntary movement, Tonic involuntary movement, Palpebral closure, Approach response, Touch response, Pinna reflex, Sound responses, Tail pinch response were observed. Handheld activities like Reactivity, Handling, Palpebral closure, Lacrimation, Salivation, Piloercetion, Papillary reflex, abdominal tone, Limb tone were observed. Functional and behavioral examination was normal in all treated groups. Food consumption of all treated animals was found normal as compared to normal group.

SUMMARY & CONCLUSION:

Summary:

The present study was conducted to know single dose toxicity of **OMA LEGHIYAM with Honey/Ghee** on female Wister rats. The study was conducted using 15 female Wister rats. The female animals were selected for study of 8- 12 weeks old with weight range of within ± 20 % of mean body weight at the time of randomization. The groups were numbered as group I, II, III, IV and V and dose with **1000,2000,3000,5000 and 6000mg/kg** of **OMA LEGHIYAM with Honey/Ghee**. The drug was administered by oral route single time and observed for 14 days. Daily the animals were observed for clinical signs and mortality.

There were no physical and behavioral changes observed in Female Wister rats during 14 days. Mortality was not observed in any treatment groups.

Conclusion:

The study shows that **OMA LEGHIYAM with Honey/Ghee** did not produce any toxic effect at dose of **1000,2000,3000,5000 and 6000mg/kg** to rats. So No-Observed-Adverse-Effect-Level (NOAEL) of **OMA LEGHIYAM with Honey/Ghee** is 6000 mg/kg.

7.0 ABBREVIATIONS

No.	Number
Mg	Milligram
Kg	Kilogram
LD_{50}	Lethal Dose $_{50}$
p.o	peros
ML	Milliliter
%	percentage
R&D	Research and Development

g% Gram percentage

g Gram

NOAEL No-Observed-Adverse-Effect-Level

MLD Minimum Lethal Dose

MTD Maximum Tolerated Dose

OECD Organisation of Economic Co-operation and Development

CPCSEA Committee for the Purpose of Control and Supervision of Experiments on Animals

8.0 REFERENCES:

1. OECD. Guideline for Testing of Chemicals 423, Acute oral toxicity (acute toxic class method). December 2001.

SUB-ACUTE TOXICITY STUDY IN WISTER RATS TO EVALUATE TOXICITY PROFILE OF OMA LEGHIYAM WITH HONEY/GHEE

Objective

The objective of this study is to evaluate the toxic effects, if any, as a result of the repeated once daily oral administration of **OMA LEGHIYAM WITH HONEY/GHEE** to Wister Albino rats for a minimum period of 28 consecutive days. This study will provide information on any major toxic effects, target organs and a rationale for concluding the No-Observed-Adverse-Effect-Level (NOAEL) and/or No Observed Effect Level (NOEL) / LOEL (Low Observed Effect Level) and risk assessment in humans.

1. Test Guidelines

This study plan is prepared as per the following guidelines:

Schedule – Y, Amendment version 2005, Drugs and Cosmetics Rules, 1945.

OECD – 407 – Repeated dose 28-day Oral Toxicity Study in Rodents, Adopted 3 October, 2008.

1.1. Test System Details

Species	:	Rat
Strain	:	Wister Albino
Source	:	Sree Venkateshwara Enterprises Pvt Ltd, Bangalore
Age	:	6-8 weeks
Sex	:	Male / Female (nulliparous and non-pregnant)
Body weight	:	160.0to 180.0 g

1.2. Acclimatization

Animals will be allowed to acclimatize to the experimental room conditions for five days prior to the commencement of dosing. During the acclimatization period, the animals will be observed daily for any apparent adverse clinical signs. Prior to assignment to the study and commencement of treatment, a detailed

physical health examination will be performed on all animals by a veterinarian and animals with any evidence of ill health or poor physical condition will not selected for the study.

1.3. Randomization and Grouping

On the starting day of dosing, the animals will be weighed and health examination will be performed by veterinarian. Animals will be randomly allocated to different groups according to their body weight by using MS-Excel sheet as described in the randomization SOP. Animals will be divided into four groups (vehicle control, low, intermediate, and high dose). At the initiation of the treatment, the body weight variation between the groups did not exceed ±20% of the mean weight of each sex.

1.4. Animal Identification

In each cage, animals will be identified with numbers by marking at the base of the ear. The cages will be identified with an attached colored cage label showing study number, study code, group number, sex, dose, strain, species, cage number, route of administration and animal number.

2. Animal Husbandry

2.1. Animal Welfare and approval

The study was approved by the IAEC (SLS) and Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA registration number: Abc14).Their recommendations regarding animal care and handling will be followed.

2.2. Environmental Conditions

The temperature of the experimental room will be maintained at 22±3^{0}C and the relative humidity between 30-70 %. The photoperiod will be 12 hours light and 12 hours dark cycles

2.3. Housing Conditions

Two animals will be housed in autoclaved polypropylene rat cages (Size in mm=L x W x H: 430 x 290 x 160) using paddy husk as the bedding material. Each cage will be fitted with a top grill having provision for keeping rodent pellet feed and an autoclaved polypropylene water bottle with stainless steel drinking nozzle.

Cages will be placed on 3-tier racks and cage rotation will be performed every week. Cages will be changed at least twice a week. The cages and water bottles will be cleaned and autoclave sterilized.

2.4. Sanitation

Each day, the floor of the animal room will be swept and mopped. Cages and bedding material will be changed once in three days and water bottles will be changed daily. All the experimental procedures will be done in a clean environment.

2.5. Feed

The experimental animals will be provided with irradiated rodent pellet feed *ad libitum* supplied from Sai feeds Pvt ltd, Chennai . Feed will be withheld for four hours prior to blood collection and necropsy.

2.6. Drinking Water

Animals will be provided with filtered drinking water *ad libitum* passed through water filter system (Aquaguard™) in autoclaved polypropylene bottles. Water bottles will be changed daily. Microbial analysis of water will be carried out once monthly and the report is maintained in the study file.

3. Personnel Safety

All personnel handling animals undergo regular medical examination. Protective clothing like apron, face mask, head cap, and gloves will be used to maintain hygienic conditions.

4. Materials and Methods

4.1. Preparation of Dose formulation

The dose formulation will be prepared under aseptic conditions as per SLS, SOP.

4.2. Route of Administration and Justification

Administration will be by oral gavage, as it is one of the possible routes of exposure.

4.3. Frequency and Duration of Administration

Once daily for 28 consecutive days

4.4. Dosing Procedure

The test item will be administered in once daily by oral gavage using a suitable intubation cannula fitted with a graduated syringe. The scheme of dosing and sacrifice time points are presented in the below below Table.

4.5. Experimental Procedures

All experimental procedures will be performed in accordance with the Study plan and Standard Operating Procedures (SOPs) of SLS.

4.6 DOSAGE SCHEDULE:

The required dose for mice/rat will be calculated by using the standard dose calculation procedure from recommended clinical dose.

CONVERSION FORMULA:

Human dose is 6000 mg /kg day

Total clinical dose (a) x conversion factor (b) 0.018 = (c) per 150 gm of Rat

6000 mg x 2(a) x 0.018 (b) = 108 (c) /150 gm of Rat

108/1000x150 = 16.2 mg

Experimental Doses Calculated as per the standard procedures are

S.No	Groups	Dose /kg, weight	Volume of administration
1	Vehicle Control	--	1 ml
2	Therapeutic Dose	16.2 mg /kg	1 ml
3	Middle Dose	81mg/kg	1 ml
4	High Dose	405mg/kg	1 ml

Experimental Design

Group No.	Group	Dose (mg/kg b.wt /day)	No. of Animals	
			Male	Female
G1	Vehicle control	**HONEY/GHEE**	5	5
G2	Low dose of **OMA LEGHIYAM WITH HONEY/GHEE**	16.2m g /kg	5	5
G3	Intermediate dose **OMA LEGHIYAM WITH HONEY/GHEE**	81mg/kg	5	5
G4	High dose **OMA LEGHIYAM WITH HONEY/GHEE**	405mg/kg	5	5

5. Observations

Animals will be observed daily throughout the treatment period at regular intervals. During the treatment period, animals will be observed twice daily for any clinical signs of toxicity, morbidity and mortality. All the surviving animals will be sacrificed at the end of scheduled period and subjected to gross necropsy and histopathological evaluations.

5.1.Clinical Signs

All the animals will be subjected to cage-side (home-cage) observations twice a day for any clinical signs of toxicity, preferably at the same time each day and considering the peak period of anticipated effect. In addition to home cage observations, a detailed clinical examination will be performed once prior to dosing and weekly thereafter during treatment period.

5.2. Morbidity/ Mortality

All animals will be examined twice a day for mortality and signs of morbidity.

5.3. Body Weights

Body weights will be recorded at the beginning of acclimatization, before randomization, there after at weekly intervals and at the time of necropsy.

5.4. Feed Consumption

Feed consumption will be calculated on a weekly basis throughout the study period.

5.5. Hematology and Clinical Biochemistry

Hematology and clinical biochemistry tests will be performed with terminally collected blood samples on day-29 from all animals. Animals will be deprived of feed overnight and blood samples will be collected by tapping the ear for visibility of the vein site and inserted the needle into the marginal ear vein and collected the blood into micro centrifuge tube. Approximately 0.5 ml of blood will be collected in vials containing 1% EDTA (20µl) as an anticoagulant for hematological analysis.

Approximately 2 ml blood will be collected from each animal in micro centrifuge tubes containing 15µl of heparin (19 units) and the plasma will be separated by centrifugation at 4000 rpm for ten minutes at 4^{o}C. The plasma will be stored at -20 ^{o}C ± 2 and used for all clinical chemistry analysis.

5.6. Hematology

Erythrocyte count (RBC), Total Leucocyte count (WBC), Hemoglobin (Hb), Hematocrit (HCT), Mean Corpuscular Volume (MCV), Mean Corpuscular Hemoglobin (MCH), Mean Corpuscular Hemoglobin Concentration (MCHC) and Platelet (PLTC).

5.7. Clinical Biochemistry

Glucose, Alanine Aminotransferase (ALT), Aspartate Aminotransferase (AST), Alkaline phosphatase (ALP), Total protein, Albumin, Creatinine, Urea, Cholesterol, Triglycerides, Sodium, Potassium, Calcium, and Chloride.

5.8 Pathology

All animals will be euthanized by CO_2 asphyxiation and subjected to necropsy under the supervision of the veterinary pathologist. Different tissues/organs of

thoracic, abdominal and cranial cavities will be examined for any gross pathological changes. Tissues from vehicle control and high dose groups will be subjected to detailed histopathological analysis (Ovaries/ testes, kidneys, liver, lungs). The organs will be fixed using Bouin's (reproductive organs) and 10% neutral buffered formalin (kidneys, liver, spleen, lungs).Processing of tissue will be done by spin tissue processer, embedding of the tissue by tissue embedder. The tissues will be initially trimmed to 10-20µ thickness and later 3-6µ to obtain thinner tissue sections by using rotary microtome. Haematoxylin and Eosin staining will be performed for all tissues.

5.8. Organ Weights

Absolute weights of adrenal glands, brain, ovaries/testes, epididymis/uterus, heart, kidneys, liver, spleen and lungs will be recorded for all the animals after trimming adherent tissue immediately after dissection from the animal. Paired organs will be weighed together. Relative weights of these organs against fasting animal body weights will be calculated and reported.

6. Data Compilation

Data will be summarised in a tabular form showing the number of animals, experimental design, dose groups, dose volume and concentrations, test item and vehicle control details. All findings like clinical signs, mortality and morbidity data, time of death, body weights, feed consumption, clinical signs, and necropsy and pathology observations will be recorded and given in the final report. One original copy of the final report is issued to the sponsor.

7. Statistical Analysis

All the parameters of treated groups of both sex, viz. body weight, feed consumption, organ weights (absolute and relative), biochemical parameters, and hematology parameters will be analyzed using SPSS software, version 16.0 by using one-way ANOVA test with multiple comparison (vehicle controls treated groups) in the study report, and p value < 0.05 is considered as statistically significant.

8. References

1. Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA) guidelines for Laboratory Animal Facility, The Gazette of India, 1998.
2. Hayes AW, 2000. Principles and Methods of Toxicology, 4th ed., Taylor and Francis, London.
3. Karl-Heinz Diehl, R. H. (2001). A Good Practice Guide to the Administration of Substances and Removal of Blood, Including Routes and Volumes. journal of applied toxicology , 15-23.
4. OECD – 407 - Repeated dose 28-day oral Toxicity Study in Rodents, Adopted October 3, 2008.
5. Schedule – Y, Amendment version 2005, Drugs and Cosmetics Rules, 1945.

MATERIALS AND METHODS

ESTIMATION OF HEMATOLOGICAL PARAMETERS: [1]

Collection of blood for hematological studies

After the treatment period the animals were anaesthetized by ketamine hydrochloride and the blood was collected from Retro-orbital sinus by using capillary into a centrifugation tube which contains EDTA for haematological parameters The haematological parameters like RBC, WBC and Hb percentage, Differential cell count, MCV, MCHC, Hematocrit, MCH, platelet count were estimated by the following procedures.

1. ENUMERATION OF RED BLOOD CELLS: [1] Ramnic 2007)

Reagents : RBC diluting fluid

Procedure:

Using a red blood cell pipette of haemocytometer, well mixed blood was drawn up to 0.5 mark and RBC diluting fluid was taken up to mark II. The fluid blood mixture was shaken and transferred onto the counting chamber. The cells were allowed to settle to the bottom of the chamber for 2 min. See the fluid does not get dried. Using 45X or high power objective the RBC's were counted uniformly in the larger corner squares.

The cells were expressed as number of cells $x10^{12}/l$

2. ENUMERATION OF WBC: [2] John 1972)

Reagents:

Turk's fluid: Turk's fluid was prepared by mixing 2ml of acetic acid with 100 ml of distilled water. To this 10 drop of aqueous methylene blue 3 % w/v) was added. This solution haemolysis the red cells due to acidity so that counting of white cells becomes easy.

Procedure:

Using a white blood cell pipette of haemocytometer, well mixed blood was drawn up to 0.5 mark and WBC diluting fluid was taken up to mark II. The fluid blood mixture was shaken and transferred onto the counting chamber. The cells were allowed to settle to the bottom of the chamber for 2 min. See the fluid does not get dried.

Using 10X or low power objective the WBC's were counted uniformly in the larger corner squares.

The cells were expressed as number of cells/10mm.

3. DIFFERENTIAL LEUCOCYTE COUNT: [3] John 1972)

Reagent:

Leishmann's stain: 150mg of powdered leishmann's stain was dissolved in 133ml of acetone free methanol.

Procedure:

A blood film stained with leishmann's stain was examined under oil immersion and the different types of WBCs were identified. The percentage distribution of these cells was then determined. Smears were made from anticoagulant blood specimens and stained with leishmann's stain. The slides were preserved for counting the number of lymphocytes and neutrophils, per 100 cells were noted.

From the different Leukocyte count and WBC count, absolute lymphocyte and neutrophil count were calculated.

$$\text{Absolute neutrophil count} = \frac{\text{Number of neutrophils}}{100} \times \text{TWBC}$$

$$\text{Absolute lymphocyte count} = \frac{\text{Number of lymphocytes}}{100} \times \text{TWBC}$$

DETERMINATION OF BIOCHEMICAL PARAMETERS:

For assessment of biochemical parameters, blood samples were collected from the animals by puncturing the retro-orbital plexus and centrifuged. The serum collected after centrifugation was analyzed for various biochemical parameters like SGOT, SGPT, ALP,TC.TG,HDL All of the above biochemical parameters were estimated using semi autoanalyzer (Photometer 5010 $_{V5+}$, Germany) with enzymatic kits procured from Piramal Healthcare limited, Lab Diagnostic Division, Mumbai, India.

1. Total Cholesterol (TC)

Principle

Determination of cholesterol is done after enzymatic hydrolysis and oxidation. The colorimetric indicator is quinoneimine, which is generated from 4-aminoantipyrine and phenol by hydrogen peroxide under the catalytic action of peroxidase (trinder's reaction).

$$\text{Cholesterol ester} + H_2O \xrightarrow{CHE} \text{Cholesterol} + \text{Fatty acid}$$

$$\text{Cholesterol} + O_2 \xrightarrow{CHO} \text{Cholesterol-3-one} + H_2O_2$$

$$2H_2O_2 + \text{4- Amino antipyrine} + \text{Phenol} \xrightarrow{POD} \text{Quinonelimine} + 4\ H_2O_2$$

Method

CHOD-PAP: Enzymatic photometric test

Table 6: Reagents

Goods buffer (pH 6.7)	50 mmol/ l
Phenol	5 mmol/l
4-aminoantipyrine	0.3 mmol/l
Cholesterol estrase	> 200 U/l
Cholesterol oxidase	> 100 U/l
Peroxidase	3 KU/l
Standard	(5.2 mmol/l)

Assay procedure

a. 1 ml (1000 µl) of reagent-1 is taken in a 5 ml test tube.
b. Added 0.01 ml (10 µl) of serum.
c. Mixed well and incubated at 37°C for 5 min.
d. Read the test sample.

NORMAL RANGE: < 200 mg/dl in serum.

1. Deeg R, Ziegenhorn J, Kinetic enzymatic method for automated determination of total cholesterol in serum, Clin. Chem., 1983, 29:1798-802.

2. Triglycerides

Principle

Determination of triglycerides (TG) alters enzymatic splitting with lipoprotein lipase. Indicator is quinoneimine which is generated from 4-aminoantipyrine and 4- chlorophenol by hydrogen peroxidase under the catalytic action of peroxidase.

$$\text{Triglycerides} \xrightarrow{\text{LPL}} \text{Glycerol + fatty acid}$$

$$\text{Glycerol + ATP} \xrightarrow{\text{GK}} \text{Glycerol-3-phosphate+ ADP}$$

$$\text{Glycerol-3-phosphate} + O_2 \xrightarrow{\text{GPO}} \text{Dihydroxyaceton phosphate} + H_2O_2$$

$$2H_2O_2 + \text{4- Amino antipyrine + 4- chlorophenol} \xrightarrow{\text{POD}} \text{Quinonelimine + HCL} + 4H_2O_2$$

Method

Colorimetric enzymatic test using glycerol-3-phosphate-oxidase (GPO).

Reagents

Components and concentrations in the test Goods buffer pH 7.2, 50 mmol/ l

Table 7: Reagents

4-chloroPhenol	4 mmol/l
ATP	2 mmol/l
Mg^{2+}	15 mmol/l
Glycerokinase	> 0.4 Kµ/l
Peroxidase	> 2 Kµ/l
Lipoprotein lipase	> 4 Kµ/l
4-aminoantipyrine	0.5 mmol/l

Glcerol-3-phosphate- oxidase	> 1.5Kμ/l
Standard	(2.3 mmol/l)

Assay procedure

a. 1 ml (1000 μl) of reagent-1 is taken in a 5 ml test tube.
b. Added 0.01 ml (10 μl) of serum.
c. Mixed well and incubated at 37°C for 15 min.
d. Read the test sample.

Normal Range: < 200 mg/dl in serum.

1. Cole T.G, Klotzsch S.G, Mcnarmara J, Measurement of triglyceride concentration, In Rifai N, Warnick G.R, Dominiczak M.H, Handbook of lipoprotein testing, Washington:AACC, Press, 1997, 115-26.

3. HDL Cholestrol

Principle

Chylomicrons, VLDL and LDL are precipitated by adding phosphotungstic acid and magnesium ions to the sample. Centrifugation leaves only the HDL in the supernatant. The cholesterol content in it is determined enzymatically.

Method

Phosphotungstic acid precipitation method.

Table 8: Reagents

Phosphotungstic acid	0.55 mmol/l
Magnesium chloride	25 mmol/l

Assay procedure

A. Preparation of supernatant for the HDL-CHL estimation

Added 200 μl of serum to the 500 μl of HDL-Cholesterol precipitating reagent (from HDL kit) in 1.5 ml centrifuge tube and mixed well. Centrifuged the above solution at 4000 rpm for 10 min.

B. Preparation of test sample for the estimation of HDL-Cholesterol

a. Taken 1000 μl of reagent-1 (from cholesterol kit) in a 5 ml test tube.
b. Added, 100 μl of supernatant from above centrifuged solution
c. Mixed well and incubated at 37°C for 15 min.
d. Read the test sample.

Normal Range: > 60 mg/dl in serum.

1. Friedewald W.T, Levy R.T, Frederickson D.S, Estimation of VLDL and LDL cholesterol, Clin. Chem., 1972, 18:499-502.

4. ESTIMATION OF SERUM GLUTAMATE PYRUVATE TRANSAMINASES (SGPT/ ALT)

1. Determination of aspartate aminotransferase (AST)

Aspartate aminotransferase, also known as Glutamate Oxaloacetate Transaminase (GOT) catalyses the transamination of L-aspartate and α keto glutarate to form oxaloacetate and L- glutamate. Oxaloacetate formed is coupled with 2,4- Dinitrophenyl hydrazine to form hydrazone, a brown coloured complex in alkaline medium which can be measured colorimetrically.

Reagents

Buffered aspartate (pH 7.4); 2,4- DNPH reagent; 4N sodium hydroxide; working pyruvate standard; solution I (prepared by diluting 1 ml of reagent 3 to 10 ml with purified water).

Procedure

Rietman and Frankle method was adopted for the estimation of SGOT. (Reitmann S, Frankel S, 1957. A colorimetric method for the determination of serum oxaloacetic and glutamic pyruvate transminases. American Journal of Clinical Pathology.28: 56-63.The reaction systems used for this study included blank, standard, test (for each serum sample) and control (for each serum sample). 0.25 ml of buffered aspartate was added into all the test tubes. Then 0.05 ml of serum was added to the test group tubes and 0.05 ml of working pyruvate standard into the standard tubes. After proper mixing, all the tubes were kept for incubation at 37^{o}C for 60 min, after which 0.25 ml each of 2,4- DNPH reagent was added into all the tubes. Then, 0.05 ml of distilled water and 0.05 ml of each serum sample was added to the blank and the serum control tubes respectively. The mixture was allowed to stand at room temperature for 20 min. After incubation, 2.5 ml of solution I was added to all test tubes. Mixed properly and optical density was measured in a spectrophotometer at 505 nm within 15 min.

The enzyme activity was calculated as:-

AST (GOT) activity in IU/L) = [(Absorbance of test **-** Absorbance of control)/ (Absorbance of standard - Absorbance of blank)] x concentration of the standard

2. Determination of alanine aminotransferase (ALT)

Alanine aminotransferase, also known as Glutathione Peroxidase (GPT) catalyses the transamination of L-alanine and α keto glutarate to form pyruvate and L- Glutamate. Pyruvate so formed is coupled with 2,4 – Dinitrophenyl hydrazine to form a corresponding hydrazone, a brown coloured complex in alkaline medium which can be measured colorimetrically.

Reagents

Buffered alanine (pH 7.4), 2,4–DNPH, 4N sodium hydroxide, working pyruvate standard, solution I (prepared by diluting 1 ml of reagent 3 to 10 ml with purified water).

Procedure

Rietman and Frankle method was dopted for the estimation of SGPT. The reaction systems used for this study included blank, standard, test (for each serum sample) and control (for each serum sample). 0.25 ml of buffered alanine was added into all the test tubes. This was followed by the addition of 0.05 ml of serum into the test group tubes and 0.05 ml of working pyruvate standard into the standard tubes. After proper mixing, all the tubes were kept for incubation at 37^{o}C for 60 minutes, after which 0.25 ml each of 2,4- DNPH reagent was added into all the tubes. Then, 0.05 ml of distilled water and 0.05 ml of each serum sample was added to the blank and the serum control tubes respectively. The mixture was allowed to stand at room temperature for 20 min. After incubation, 2.5 ml of solution **I** was added to all test tubes. Mixed properly and optical density was read against purified water in a spectrophotometer at 505 nm within 15 min.

The enzyme activity was calculated as:- ALT (GPT) activity in IU/L) = [(Absorbance of test **-** Absorbance of control)/ (Absorbance of standard - Absorbance of blank)] x concentration of the standard.

3. Determination of alkaline phosphatase (ALP)

Alkaline phoshatase from serum converts phenyl phosphate to inorganic phosphate and phenol at pH 10.0. Phenol so formed reacts in alkaline medium with 4-aminoantipyrine in presence of the oxidising agent potassium ferricyanide and forms an orange-red coloured complex, which can be measured spectrometrically. The color intensity is proportional to the enzyme activity.

Reagents:

Buffered substrate

Chromogen Reagent

Phenol Standard, 10 mg%

Procedure:

ALP was determined using the method of Kind (Kind PRM, King EJ, 1972. *In-vitro* determination of serum alkaline phosphatase. Journal of Clinical Pathology 7: 321-22\). The working solution was prepared by reconstituting one vial of buffered substrate with 2.2 ml of water. 0.5 ml of working buffered substrate and 1.5 ml of purified water was dispensed to blank, standard, control and test. Mixed well and incubated at 37^{0}C for 3 min. 0.05 ml each of serum and phenol standard were added to test and standard test tubes respectively. Mixed well and incubated for 15 min at 37^{0}C. Thereafter, 1 ml of chromogen reagent

was added to all the test tubes. Then, added 0.05 ml of serum to control. Mixed well after addition of each reagent and the O.D of blank, standard, control and test were read against purified water at 510 nm.

Serum alkaline phosphatase activity in KA units was calculated as follows
[(O.D. Test-O.D. Control) / (O.D. Standard- O.D. Blank)] x 10

4. Determination of bilirubin

In toxic liver, bilirubin levels are elevated. Hyperbilirubinemia can result from impaired hepatic uptake of unconjugated bilirubin, such a situation can occur in generalized liver cell injury, certain drugs (e.g Rifampin and probenecid) interfere with the rat uptake of bilirubin by the liver cell and may produce a mild unconjugated hyperbilirubinemia. Bilirubin level rises in diseases of hepatocytes, obstruction to bilirubin excretion into duodenum, in haemolysis and defects of hepatic uptake and conjugation of Bilirubin pigment such as Gilbert's disease.

Elevation of total serum bilirubin may occur due to:

1.Excessive haemolysis or destruction of the red blood cells.Eg:Haemolytic disease of the new born.

2.Liver diseases.Eg.Hepatitis and cirrhosis.

3.Obstruction of the biliary tract.Eg.Gall stones.

The method is based on the reaction of Sulfonilic acid with sodium nitrite to form azobilirubin which has maximum absorbance at 546nm in the aqueous solution. The intensity of the color Produced is directly proportional to the amount of direct or total bilurubin concentration present in the sample.

Reagents

1. Diazo A-(Reagent-R1) :Ready to use

2. Diazo B-(Reagent-R2):Ready to use

3. Bilirubin Activater :Ready to use

Procedure

Kind & King's method was followed for the estimation of Bilirubin. Five hundred µl of working reagent was added to 50 µl of rat serum & incubated for 5 min at 37°C. Absorbance was measured AT 546 NM in semi auto analyzer against the standard.

The Bilirubin content was calculated using the following equation:

Total bilirubin (mg/dt) = Abs of the sample blank x 15.

Direct Bilirubin(mg/dt) = Abs of sample blank x 10.

5. ESTIMATION OF UREA

Urea is the nitrogen-containing end product of protein catabolism. States associated with elevated levels of urea in blood are referred to as hyper uremia or azotemia.

Method

Estimation of urea was done by Urease-GLDH: enzymatic UV test.

Principle

$$\text{Urea} + 2H_2O \xrightarrow{\text{Urease}} 2NH_4 + 2HCO_3$$

$$\text{2- Oxoglutarate} + NH_4^+ + \text{NADH} \xrightarrow{\text{GLDH}} \text{L- Glutamate} + NAD^+ + H_2O$$

Table 14. Reagents

R 1	TRIS pH 7.8	120 mmol/l
	2-Oxoglutarate	7 mmol/l
	ADP	0.6 mmol/l
	Urease	≥ 6 KU/l
	GLDH	≥ 1 KU/l
R 2	NADH	0.25 mmol
R 3	Standard	40 mg/dl

Procedure

a. Take 1000 µl of reagent-1 and 250 µl of reagent-2 in 5 ml test tube.
b. To this, add 10 µl of serum.
c. Mix well and immediately read the test sample at 340 nm Hg 334 nm Hg 365 nm optical path 1 cm against reagent blank (2-point kinetic).
d. And note down the value.

Normal range: 10 – 50 mg/dl.

6. ESTIMATION OF URIC ACID

Uric acid and its salts are end products of the purine metabolism. In gout the most common complication of hyperuricemia, ie. Increased serum levels of uric acid lead to formation of monosodium urate crystal around the joints.

Method

Enzymatic photometric test using TOOS (N ethyl- N (hydroxyl -3- sulfopropyl)-m- toluidin)

Principle

Uric acid + H_2O + O_2 $\xrightarrow{\text{uricase}}$ Allantoin +CO_2 +H_2O_2

TOOS + 4 aminoantipyrine + $2H_2O_2$ $\xrightarrow{\text{POD}}$ Indamine + $3H_2O$

Table 15.reagents

R1	Phosphate buffer pH 7.0	100mmol/l
	TOOS	1mmol/l
	Ascorbate oxidase	≥1 KU/l
R2	Phosphate buffer pH 7.0	100mmol/l
	4- amino antipyrine	0.3mmol/l
	K_4 (Fe(CN)$_6$)	10µmol/l
	Peroxidase	≥1KU/l
	Uricase	≥50U/l

Procedure

a. Take 800µl of reagents -1 in a2ml centrifuge tube.
b. To this add 20µl of serum.
c. Mix well and incubate at 30°c for 5 minutes.
d. Then add 200µl of reagent2
e. Mix well incubate for 5min at 37°c
f. Measure the not down the values.

Normal range: 1.9-8.2mg/dl

7. ESTIMATION OF CREATININE:

Principle:

Creatinine forms a coloured complex with picrate in alkaline medium.

The rate of formation of the complex is measured.

Reagents:

Reagent 1 Standard Creatinine (2mg/100ml)

Reagent 2 Picric acid solution.

Reagent 3 sodium hydroxide solution

Procedure:

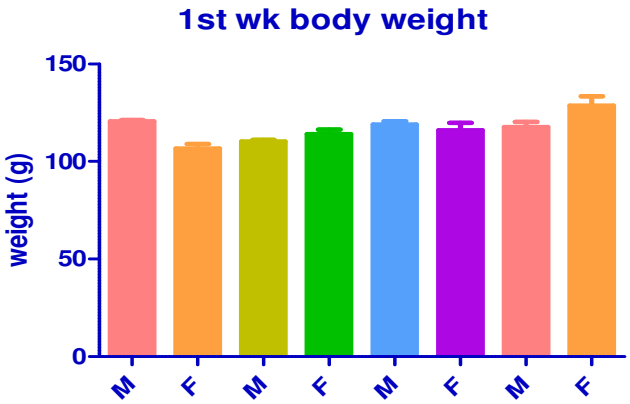
Take 500 µl of reagent -2 and 500 µl of reagent -3 in a 5ml test tube. To this add 100 µl of serum. Mix well and immediately read the test sample at Hg 492 nm 1cm light path and note down the values.

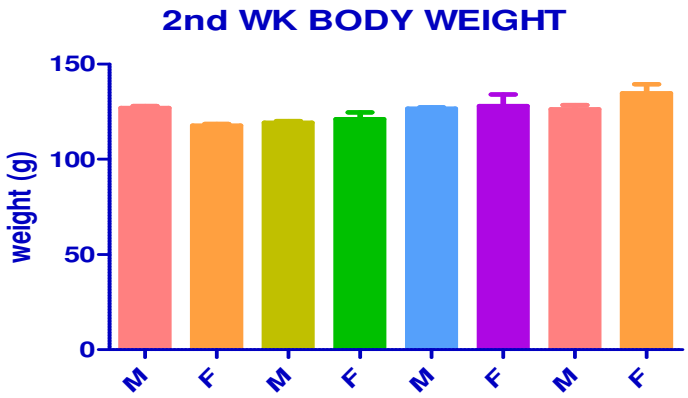
Normal range is 0.6 -1.1 mg/dl

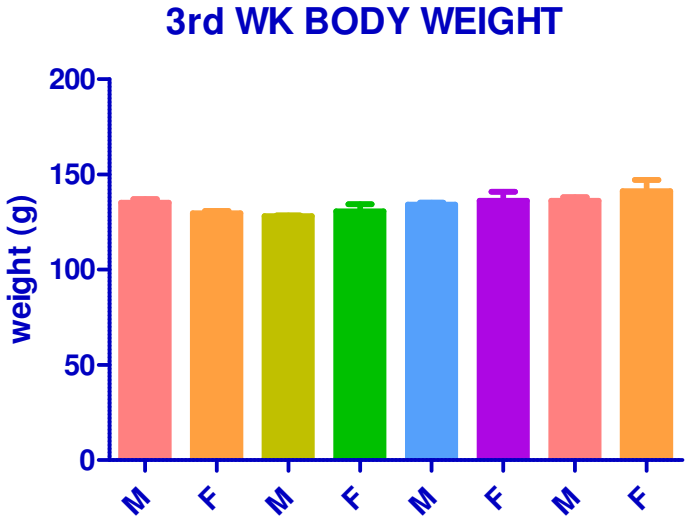
TABLE: 1 EFFECT OF SUB-ACUTE DOSES (28 DAYS) OF OMA LEGHIYAM WITH HONEY/GHEE ON BODY WEIGHT IN Gram (PHYSICAL PARAMETER)

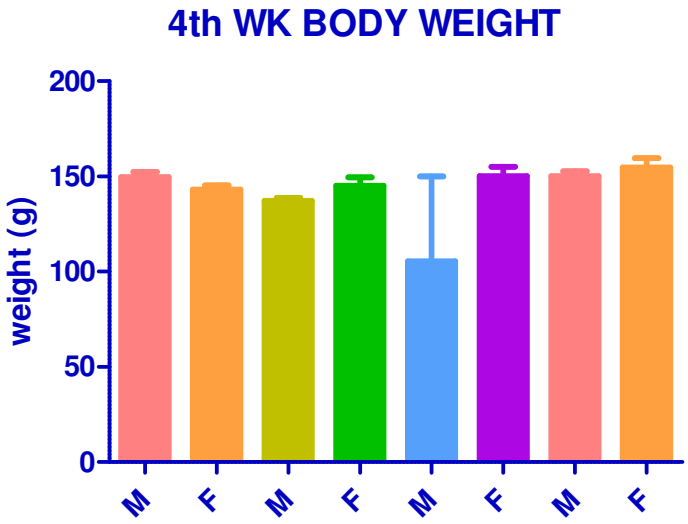
GPs	Control		Low Dose		Middle Dose		High Dose	
	Male	Female	Male	Female	Male	Female	Male	Female
1st wk	120.7± 0.6667	106.7± 2.404	110.3± 0.8819	114± 2.309	119± 1.732	116± 3.786	117.7± 2.603	128.7± 4.807
2nd wk	127±1	117.7± 0.8819	119.3± 0.6667	121± 3.512	126.7± 0.6667	128± 6.083	126.3± 2.186	134.7± 4.807
3rd wk	135.3± 1.764	129.7± 1.202	128.3± 0.3333	130.7± 3.712	134.3± 0.8819	136.3± 4.631	136.3± 1.764	141.3± 5.897
4th wk	149.7± 2.728	143± 2.309	137.3± 1.453	145± 4.583	105.3± 44.7	150.3± 4.667	150.3± 2.404	154.7± 4.91

Values are expressed as the mean ± S.D




2nd WK BODY WEIGHT
weight (g)
150
100
50
0
M
F
M
F
M
F
M
F


3rd WK BODY WEIGHT
weight (g)
200
150
100
50
0
M
F
M
F
M
F
M
F

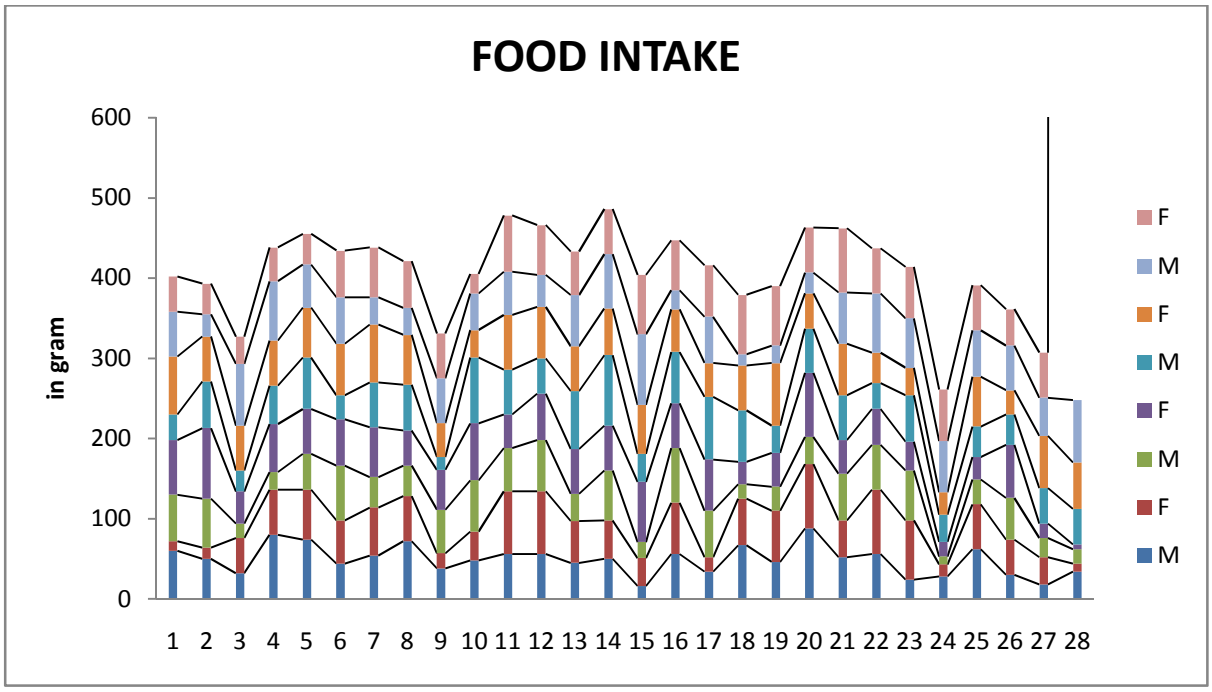

4th WK BODY WEIGHT
weight (g)
200
150
100
50
0
M
F
M
F
M
F
M
F

EFFECT OF SUB-ACUTE DOSES (28 DAYS) OF OMA LEGHIYAM WITH HONEY/GHEE ON FOOD INTAKE In Gram

Groups	Control		Low Dose		Middle Dose		High Dose	
DAY	Male	Female	Male	Female	Male	Female	Male	Female
Day 1	60	12	58	68	32	72	56	44
DAY2	50	14	61	88	58	56	28	38
DAY3	32	44	18	40	26	56	77	34
Day 4	80	56	22	60	48	56	74	42
DAY5	74	62	45	56	64	62	54	38
Day 6	44	54	68	58	30	64	58	58
DAY7	54	60	38	62	56	72	34	62
DAY8	72	56	38	44	57	62	34	58
Day 9	38	19	54	50	16	42	56	56
DAY10	48	36	64	71	82	34	46	24
Day 11	56	78	54	42	56	68	54	70
DAY12	56	78	64	58	44	64	40	62
DAY13	45	52	34	56	72	56	64	54
Day 14	50	48	62	56	88	58	68	56
DAY15	16	35	20	75	35	61	88	74
Day 16	56	64	68	56	64	53	24	62
DAY17	34	18	58	64	78	42	58	64
DAY18	67	58	18	28	64	56	14	74
Day 19	46	64	30	42	34	78	22	74

DAY20	88	80	34	80	55	44	26	56
DAY21	52	46	58	42	56	64	64	80
Day 22	56	80	56	45	32	38	74	56
DAY23	24	74	62	36	58	34	62	64
DAY24	28	15	10	18	34	28	64	64
Day 25	62	56	31	28	38	62	58	56
DAY26	30	44	52	66	38	30	56	45
DAY27	18	34	24	18	44	65	48	56
DAY28	34	10	18	6	44	58	78	

Values are expressed as the mean ± S.D

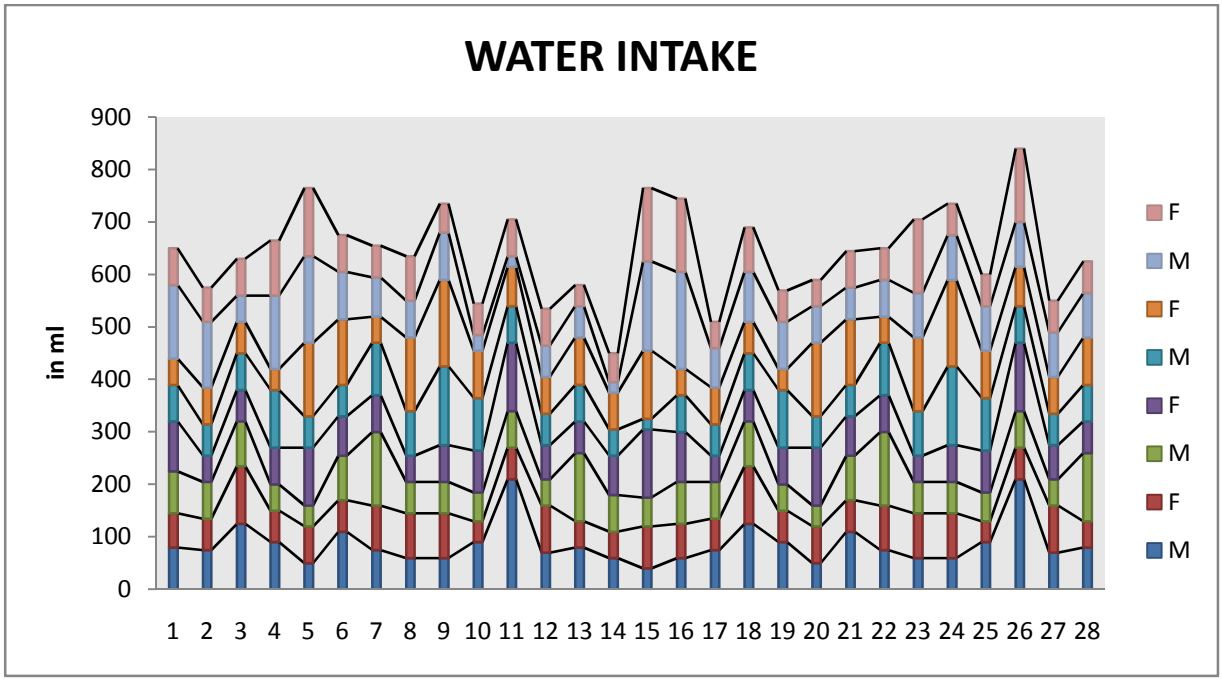


EFFECT OF SUB-ACUTE DOSES (28 DAYS) OF OMA LEGHIYAM WITH HONEY/GHEE ON WATER INTAKE IN ml

Groups	Control		Low Dose		Middle Dose		High Dose	
DAY	Male	Female	Male	Female	Male	Female	Male	Female
Day 1	80	65	80	95	70	50	140	70
DAY2	75	60	70	50	60	70	125	65
DAY3	125	110	85	60	70	60	50	70
Day 4	90	60	50	70	110	40	140	105
DAY5	50	70	40	110	60	140	165	130
Day 6	110	60	85	75	60	125	90	70
DAY7	75	85	140	70	100	50	75	60
DAY8	60	85	60	50	85	140	70	85
Day 9	60	85	60	70	150	165	90	55
DAY10	90	40	55	80	100	90	30	60
Day 11	210	60	70	130	70	75	20	70
DAY12	70	90	50	65	60	70	60	70
DAY13	80	50	130	60	70	90	60	40
Day 14	60	50	70	75	50	70	20	55
DAY15	40	80	55	130	20	130	170	140
Day 16	60	65	80	95	70	50	185	140
DAY17	75	60	70	50	60	70	75	50
DAY18	125	110	85	60	70	60	95	85
Day 19	90	60	50	70	110	40	90	60

DAY20	50	70	40	110	60	140	70	50
DAY21	110	60	85	75	60	125	60	70
Day 22	75	85	140	70	100	50	70	60
DAY23	60	85	60	50	85	140	85	140
DAY24	60	85	60	70	150	165	85	60
Day 25	90	40	55	80	100	90	85	60
DAY26	210	60	70	130	70	75	85	140
DAY27	70	90	50	65	60	70	85	60
DAY28	80	50	130	60	70	90	85	60

Values are expressed as the mean ± S.D

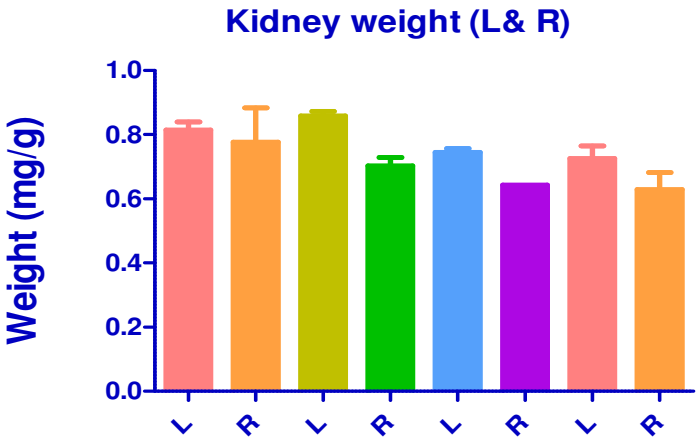


EFFECT OF SUB-ACUTE DOSES (28 DAYS) OF OMA LEGHIYAM WITH HONEY/GHEE ON ORGAN WEIGHT in gm

GROUP		CONTROL	Low Dose	Middle Dose	High Dose
LIVER WEIGHT		6.835±0.055	6.664±0.118	5.906±0.0295	6.579±0.2535
KIDNEY WEIGHT	L	0.8145±0.0255	0.8585±0.0145	0.7445±0.0125	0.7265±0.0385
	R	0.776±0.108	0.703±0.026	0.643±0	0.63±0.052
HEART WEIGHT		0.708±0.02	0.6435±0.0115	0.7285±0.0165	0.7615±0.0265
LUNGS WEIGHT		1.181±0.1975	0.7305±0.1625	0.7505±0.0175	1.174±0.3845
TESTIS WEIGH		3.041±0.0575	2.725±0.057	2.621±0.273	2.161±0.179
UTERUS		0.5135±0.0545	0.4045±0.0165	0.48±0.043	0.3575±0.0315

Values arae expressed as mean ± SEM Statistical significance (p) calculated by one way ANOVA followed by dunnett's (n=6); $^{ns}p>0.05$, *p<0.05, **p<0.01, ***p<0.001, calculated by comparing treated groups with control group.


LIVER WEIGHT
Weight (mg/g)
8
6
4
2
0
CONTROL
LOW DOSE
MIDEL DOSE
HIGHE DOSE


Kidney weight (L& R)
Weight (mg/g)
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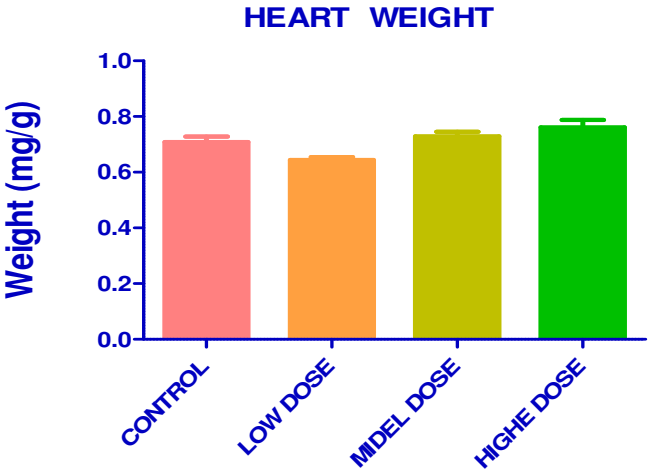
0.8
0.6
0.4
0.2
0.0
L
R
L
R
L
R
L
R


HEART WEIGHT
Weight (mg/g)
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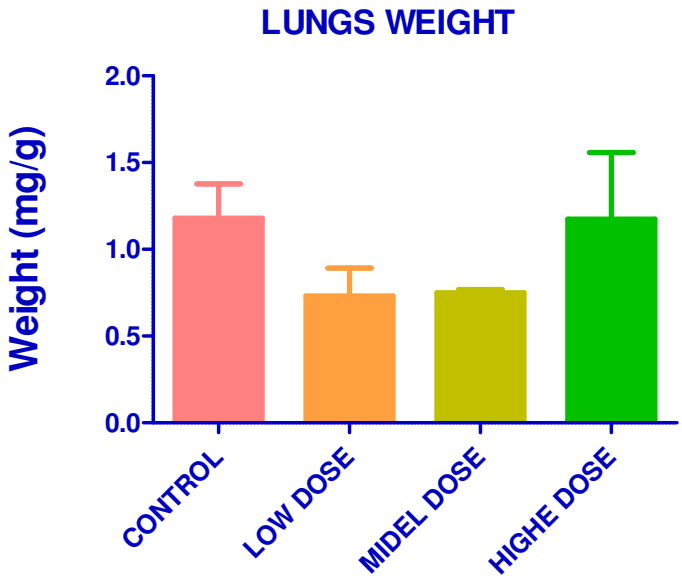
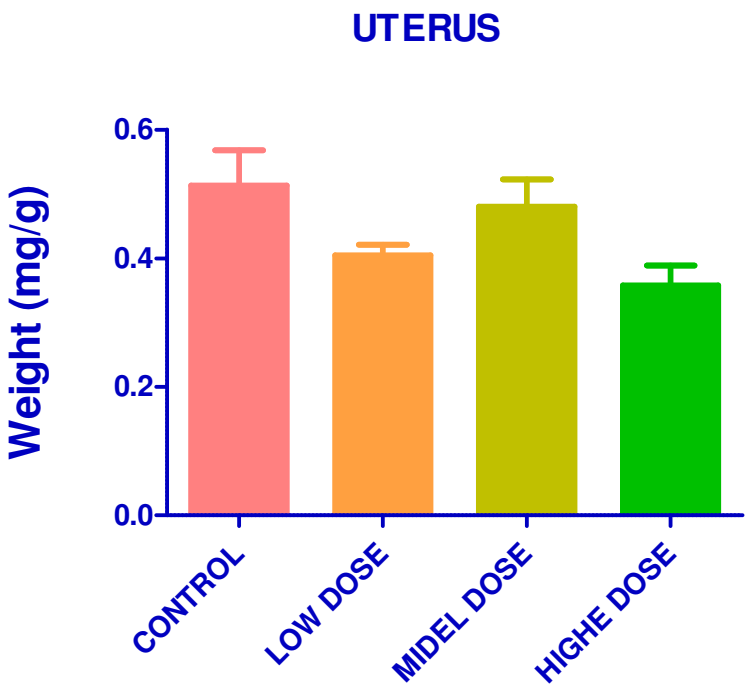
0.8
0.6
0.4
0.2
0.0
CONTROL
LOW DOSE
MIDEL DOSE
HIGHE DOSE


LUNGS WEIGHT
Weight (mg/g)
2.0
1.5
1.0
0.5
0.0
CONTROL
LOW DOSE
MIDEL DOSE
HIGHE DOSE

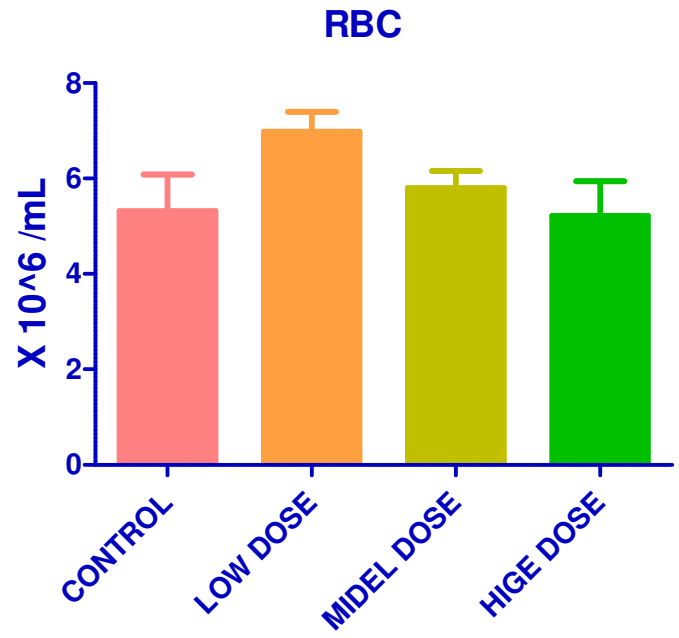

TESTIS WEIGHT
Weight (mg/g)
4
3
2
1
0
CONTROL
LOW DOSE
MIDEL DOSE
HIGHE DOSE

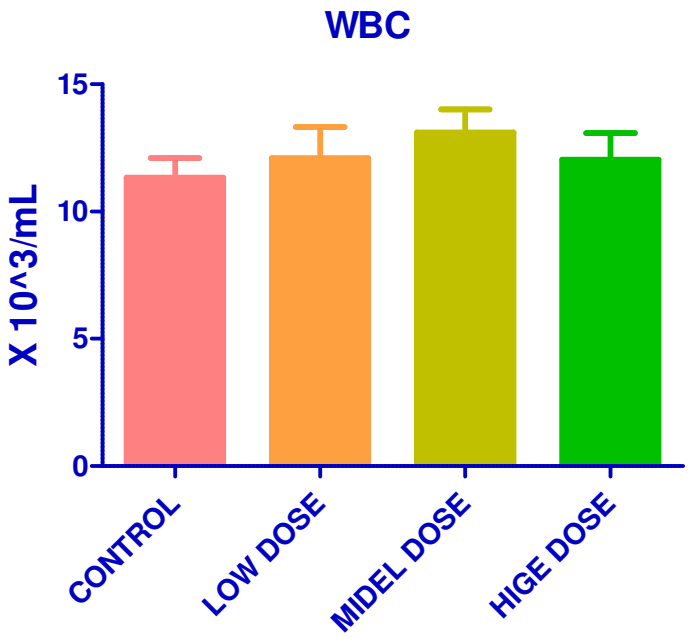


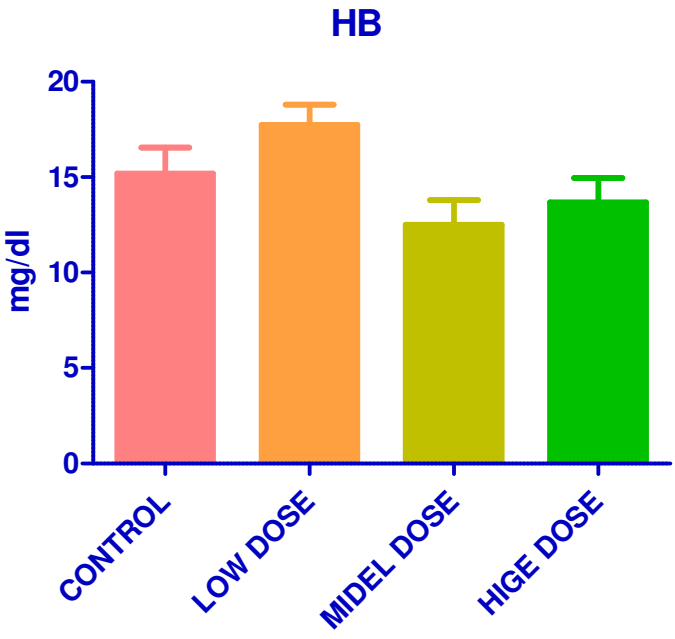
EFFECT OF SUB ACUTE DOSES (28 DAY) 0F OMA LEGHIYAM WITH HONEY/GHEE ON HAEMATOLOGICAL PARAMETERS

Groups	Control	Low Dose	Middle Dose	High Dose
Rbc ($X10^3$/µl)	5.32±0.7614	6.98±0.4179	5.8±0.3553	5.217±0.726
Wbc($X10^6$/µl)	11.33±0.7753	12.1±1.222	13.1±0.9074	12.03±1.053
Hb (g/dl)	15.2±1.365	17.73±1.059	12.5±1.3	13.7±1.266

Values are expressed as the mean ± S.D; Statistical significance (p)calculated by one way ANOVA followed by dunnett's ns- no significant $^{*}P< 0.001$, $^{**}P < 0.01$, $^{***}P < 0.05$ calculate by comparing treated group with CONTROL group.


RBC
X 10^6 /mL
8
6
4
2
0
CONTROL
LOW DOSE
MIDEL DOSE
HIGE DOSE

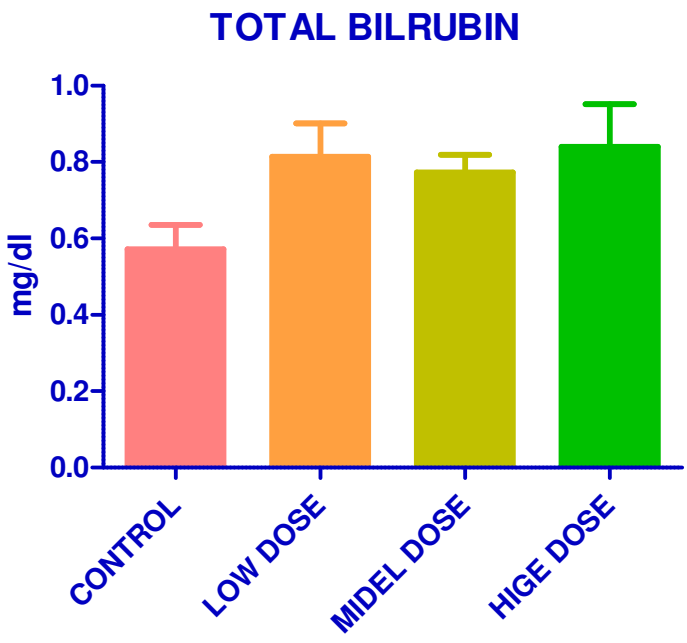

WBC
X 10^3/mL
15
10
5
0
CONTROL
LOW DOSE
MIDEL DOSE
HIGE DOSE



EFFECT OF SUB ACUTE DOSES (28 DAY) 0F OMA LEGHIYAM WITH HONEY/GHEE ON BIOCHEMICAL PARAMETER (LIVER PROFILE)

Groups	Control	Low Dose	Middle Dose	High Dose
Total Bilirubin(mg/dl)	0.5725±0.06277	0.815±0.08665	0.7725±0.04697	0.84±0.112

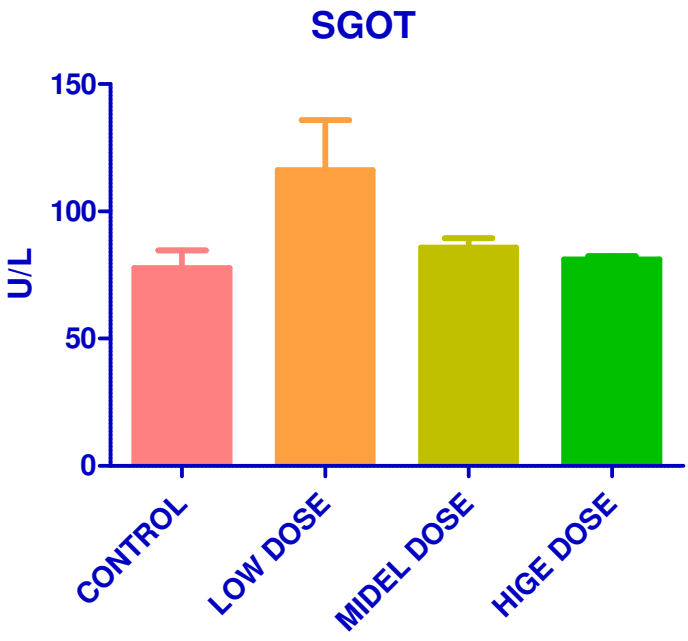
Values are expressed as the mean ± S.D; Statistical significance (p)calculated by one way ANOVA followed by dunnett's ns- no significant $^{*}P< 0.001$, $^{**}P < 0.01$, $^{***}P < 0.05$ calculate by comparing treated group with CONTROL group.

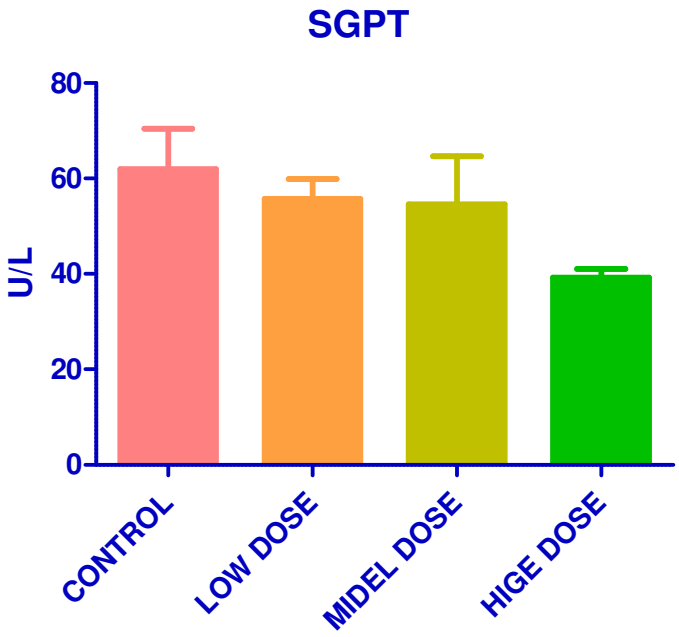


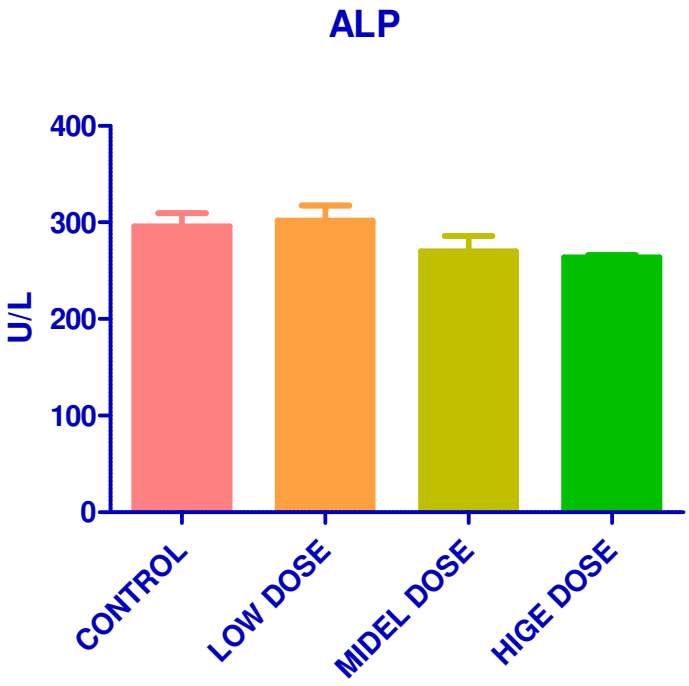
EFFECT OF SUB ACUTE DOSES (28 DAY) 0F OMA LEGHIYAM WITH HONEY/GHEE ON BIOCHEMICAL PARAMETER (LIVER PROFILE)

Groups	Control	Low Dose	Middle Dose	High Dose
SGOT (U/L)	77.73±6.929	116.2±19.57	85.83±3.636	81.13±1.255
SGPT (U/L)	61.96±8.474	55.79±4.079	54.67±10.04	39.27±1.796
ALP (U/L)	296.3±13.05	301.9±15.44	270±16.31	263.8±2.509

Values are expressed as the mean ± S.D; Statistical significance (p) calculated by one way ANOVA followed by dunnett's ns- no significant $^{*}P< 0.001$, $^{**}P < 0.01$, $^{***}P < 0.05$ calculate by comparing treated group with CONTROL group.


SGOT
150
100
50
0
U/L
CONTROL
LOW DOSE
MIDEL DOSE
HIGE DOSE


SGPT
80
60
40
20
0
U/L
CONTROL
LOW DOSE
MIDEL DOSE
HIGE DOSE

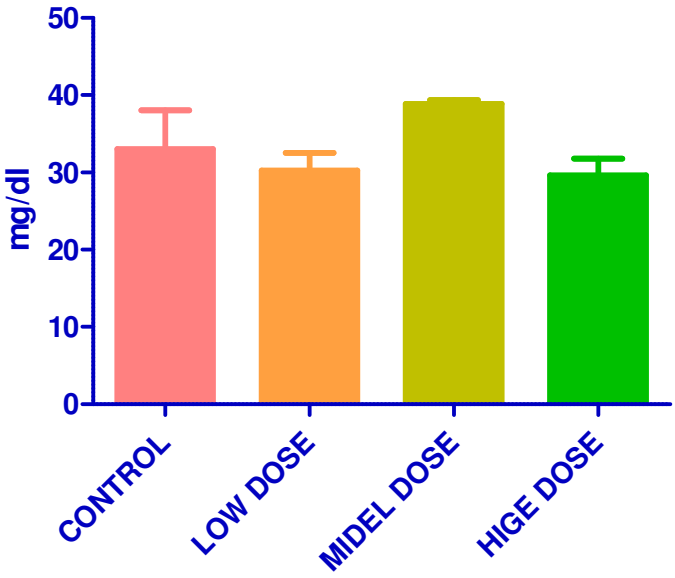


EFFECT OF SUB ACUTE DOSES (28 DAY) 0F OMA LEGHIYAM WITH HONEY/GHEE ON BIOCHEMICAL PARAMETER (KIDNEY PROFILE)

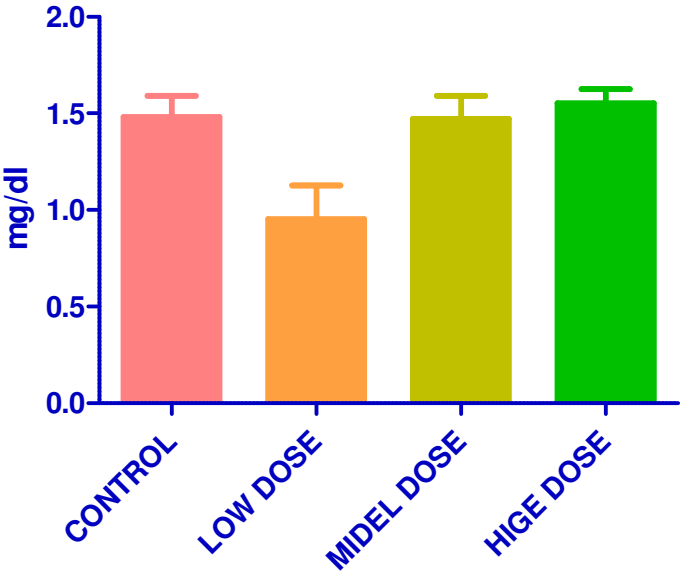
Groups	Control	Low Dose	Middle Dose	High Dose
Urea (mg/dl)	33.03±4.969	30.23±2.277	38.87±0.5048	29.66±2.116
Uric acid (mg/dl)	1.483±0.1082	0.9525±0.1752*	1.473±0.119	1.553±0.07364
Creatinine (mg/dl)	0.3325±0.02056	0.2275±0.03425	0.2025±0.02056*	0.28±0.03742

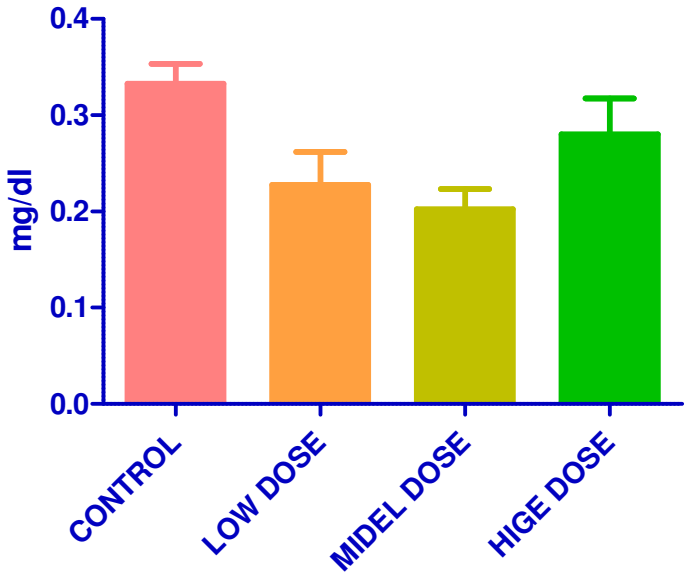
Values are expressed as the mean ± S.D; Statistical significance (p)calculated by one way ANOVA followed by dunnett's ns- no significant $^{*}P< 0.001$, $^{**}P < 0.01$, $^{***}P < 0.05$ calculate by comparing treated group with CONTROL group.

UREA



URIC ACID



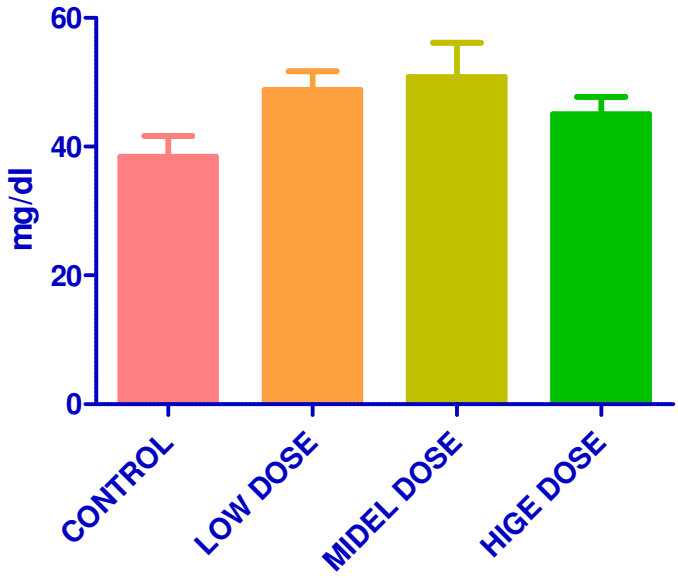


EFFECT OF SUB ACUTE DOSES (28 DAY) 0F OMA LEGHIYAM WITH HONEY/GHEE ON BIOCHEMICAL PARAMETER (LIPID PROFILE)

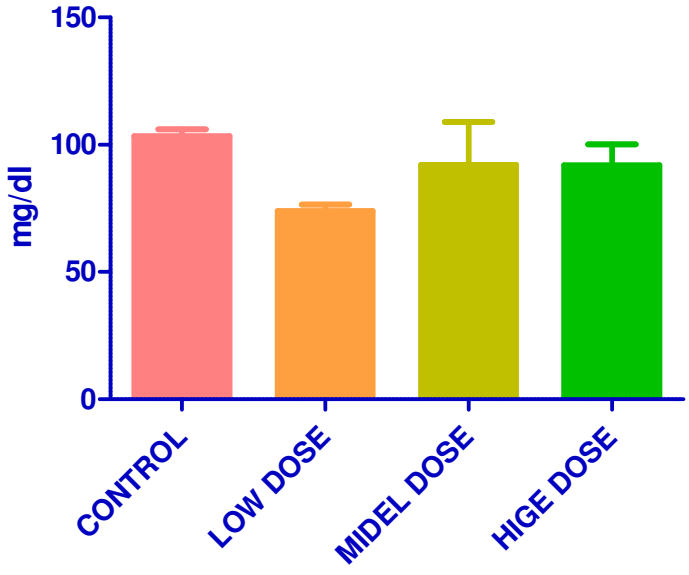
Groups	Control	Low Dose	Middle Dose	High Dose
Total cholesterol (mg/dl)	38.43±3.23	48.85±2.857	50.83±5.302	45±2.724
Triglycerides (mg/dl)	103.5±2.552	73.9±2.585	92.05±16.84	91.93±8.302
HDL-Cholesterol (mg/dl)	8.47±1.149	8.45±1.515	5.825±1.017	7.625±2.655

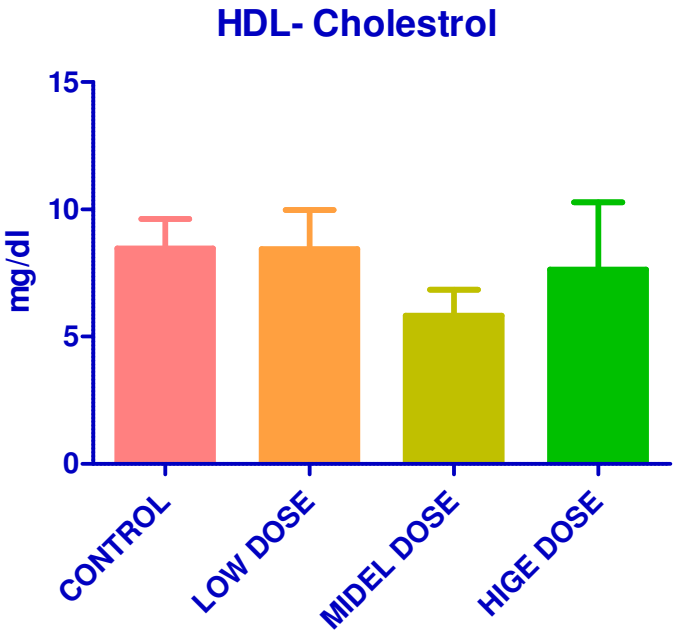
Values are expressed as the mean ± S.D; Statistical significance (p)calculated by one way ANOVA followed by dunnett's ns- no significant $^{*}P< 0.001$, $^{**}P < 0.01$, $^{***}P < 0.05$ calculate by comparing treated group with CONTROL group.

TOTAL CHOLESTEROL



TG





RESULTS:

CLINICAL SIGNS:

All animals in this study were free of toxic clinical signs throughout the dosing period of 28 days.

Mortality:

All animals in control and in all the treated dose groups survived throughout the dosing period of 28 days.

Body weight:

Results of body weight determination of animals Table-1 from control and different dose groups exhibited comparable body weight gain throughout the dosing period of 28 days.

Food consumption:

During dosing and the post-dosing recovery period, the quantity of food consumed by animals from different dose groups was found to be comparable with that by control animals.

Organ Weight:

Group Mean Relative Organ Weights (% of body weight) are recorded in Table No.4 Comparison of organ weights of treated animals with respective control animals on day 29 was found to be comparable similarly.

Hematological investigations:

The results of hematological investigations (Table 4) conducted on day 29 revealed following significant changes in the values of different parameters investigated when compared with those of respective controls; however, the increase or decrease in the values obtained was within normal biological and laboratory limits or the effect was not dose dependent.

Biochemical Investigations:

Results of Biochemical investigations conducted on days 29 and recorded in Table 2 revealed the following significant changes in the values of hepatic serum enzymes studied. When compared with those of respective control. However, the increase or decrease in the values obtained was within normal biological and laboratory limits.

Histopathology:

In histopathological examination, revealed normal architecture in comparison with control and treated animal.

DISCUSSION:

1) All the animals from control and all the treated dose groups up to 500 mg/kg survived throughout the dosing period of 28 days.

2) No signs of toxicity were observed in animals from different dose groups during the dosing period of 28 days.

3) Animals from all the treated dose groups exhibited comparable body weight gain with that of controls throughout the dosing period of 28 days.

4) Food consumption of control and treated animals was found to be comparable throughout the dosing period of 28 days

5) Haematological analysis conducted at the end of the dosing period on day 29, revealed no abnormalities attributable to the treatment.

6) Biochemical analysis conducted at the end of the dosing period on day 29 no abnormalities attributable to the treatment.

7) Organ weight data of animals sacrificed at the end of the dosing period was found to be comparable with that of respective controls.

8) Histopathological examination revealed normal architecture in comparison with control and treated animal.

SUMMARY AND CONCLUSION:

In conclusion **OMA LEGHIYAM WITH HONEY/GHEE** can be considered safe, as it did not cause either any lethality or adverse changes with general behavior of rats and also there were no observable detrimental effects (100 to 300 mg/kg body weight) over a period of 28 days. Our results have demonstrated that the **OMA LEGHIYAM WITH HONEY/GHEE** is relatively safe when administered orally in rats.

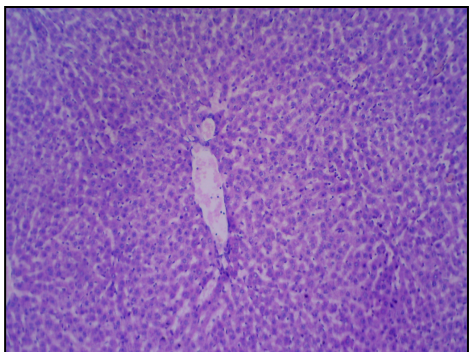
9.0 ABBRVIATION

No.	Number
Mg	Milligram
Kg	Kilogram
LD_{50}	Lethal Dose $_{50}$
p.o.	peros
mL	Milliliter
%	percentage
R&D	Research and Development
EDTA	Ethylene Diamine Tetra Acetic Acid
M	Male

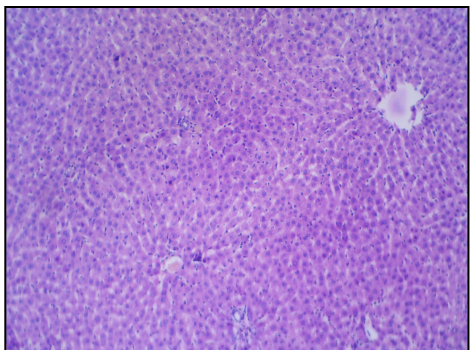
g%	Gram percentage
g	Gram
NOAEL	No-Observed-Adverse-Effect-Level
MLD	Minimum Lethal Dose
MTD	Maximum Tolerated Dose
OECD	Organisation of Economic Co-operation and Development
CPCSEA	Committee for the Purpose of Control and Supervision of Experiments on Animals

HISTOPATHOLOGY - TOXICITY STUDY

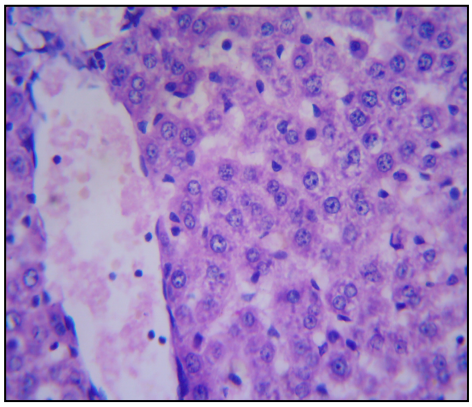
SPECIMEN : A) Liver. Group – : Oma legiyam .



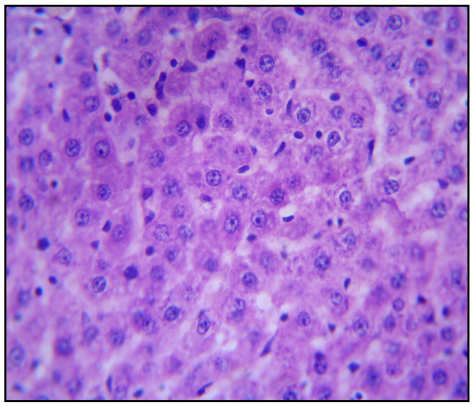
10x shows normal lobular architecture with portal tract



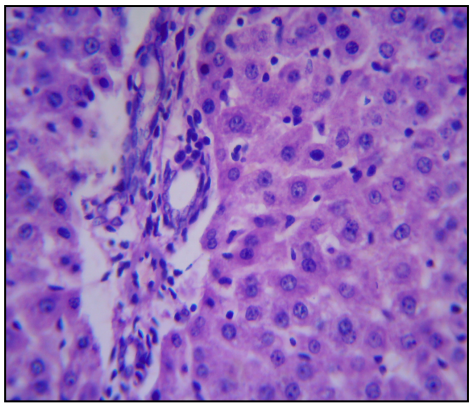
10x shows normal lobular architecture



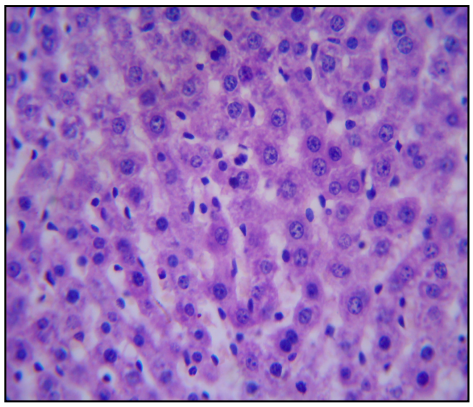
40x shows central vein congestion



40x shows individual hepatocytes shows no significant pathology



40x shows mild periportal inflammation



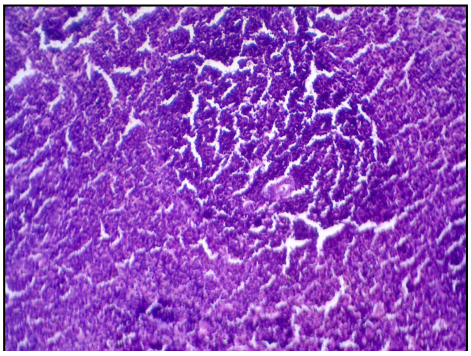
40x shows sinusoidal dilatation

MICROSCOPIC APPEARANCE:

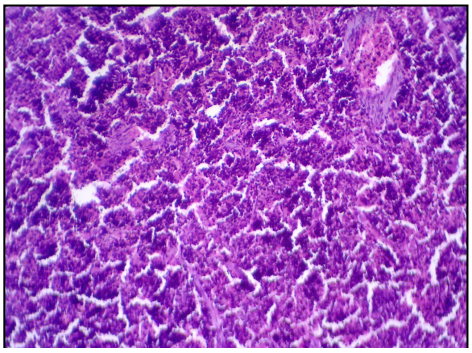
Section from liver shows lobular architecture with interface hepatitis. Individual Hepatocytes shows reactive atypia. Portal triad shows no significant pathology. Central vein and Sinusoids show dilatation.

SPECIMEN : B) spleen.

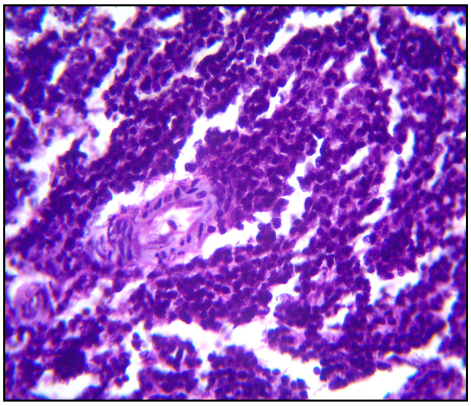
Group – : Oma legiyam



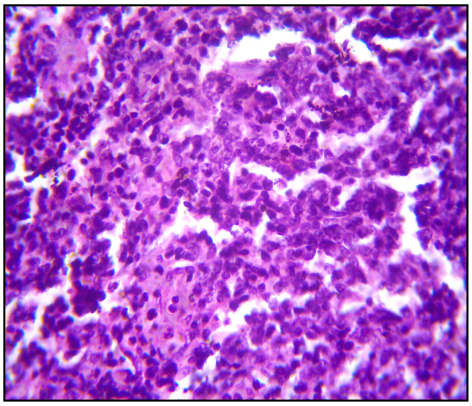
10x shows normal spleen with white pulp shows germinal centre formation and pencillar artery



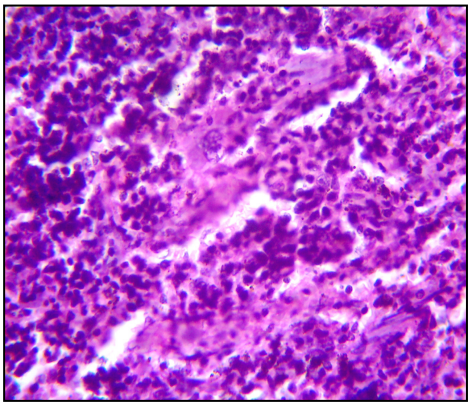
10x shows normal spleen



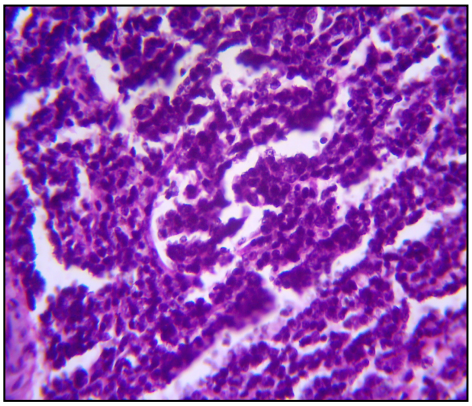
40x shows normal pencillar artery



40x shows normal red pulp



40x shows red pulp



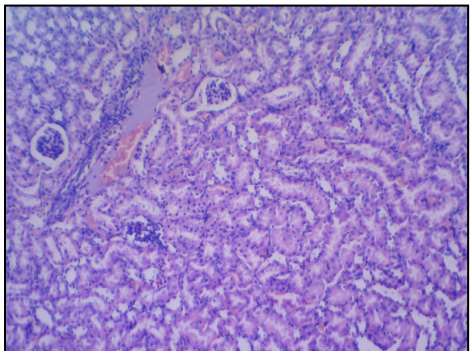
40x shows white pulp with lymphocytic infiltration

MICROSCOPIC APPEARANCE:

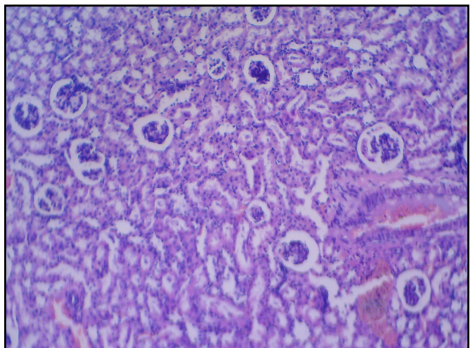
Section studied from spleen shows normal white pulp and red pulp. Red pulp shows pigment laden macrophages and congested vessels. White pulp shows lymphocytic infiltrates forming germinal centre. The pencillar artery shows normal morphology. Megakaryocytes

SPECIMEN : C) Kidney.

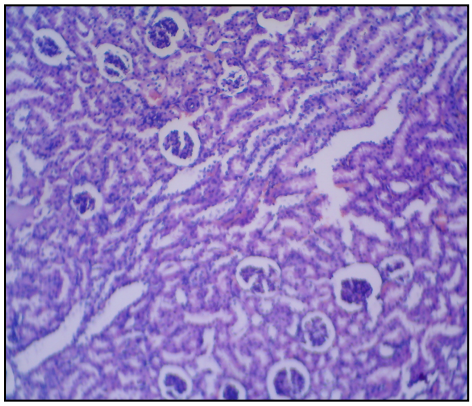
Group – : Oma legiyam



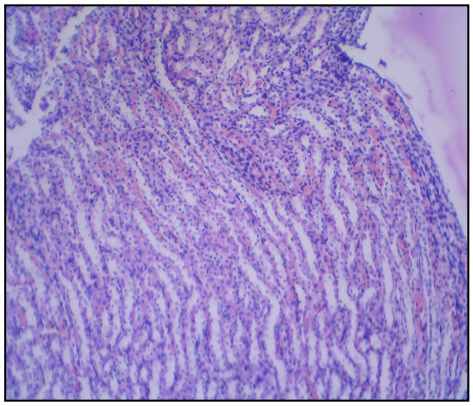
10x shows normal kidney



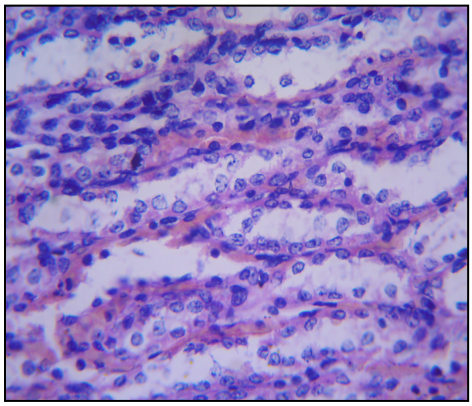
10x shows kidney with both cortex and medulla and blod vessels congestion



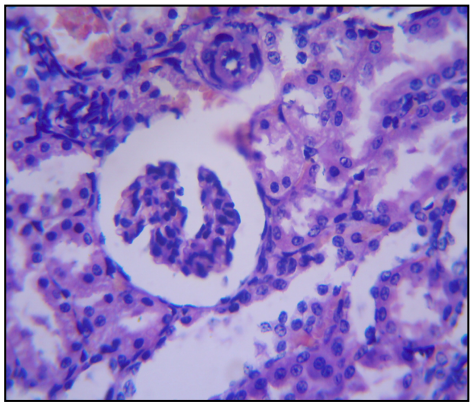
10x shows normal glomeruli and tubules



10x shows normal interstitium



10x shows normal interstitium



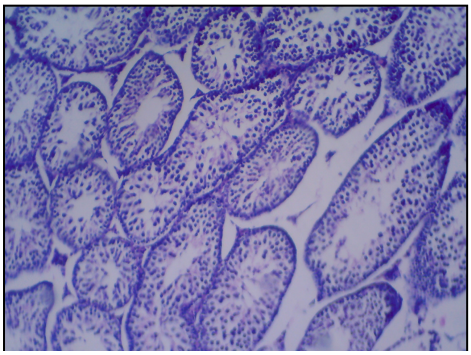
10x shows normal interstitium

MICROSCOPIC APPEARANCE:

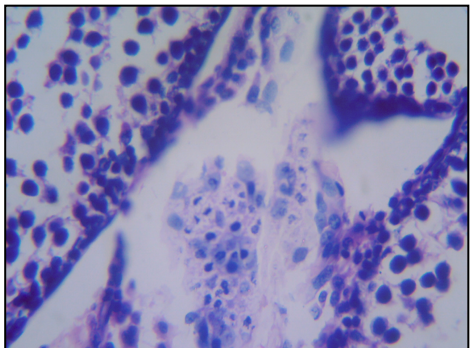
Section from kidney shows both cortex and medulla. Glomeruli and tubules shows no significant pathology. Interstitium shows no significant pathology. Blood vessels show congestion. There is no evidence of toxic changes.

SPECIMEN : D) Testis

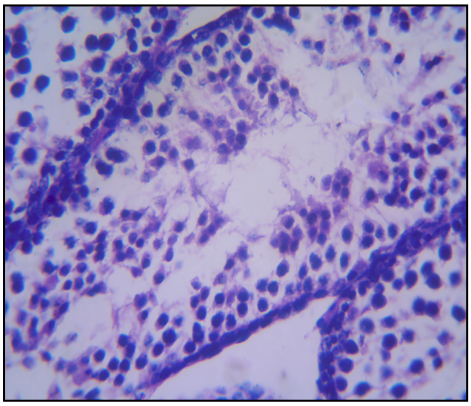
Group – : Oma legiyam



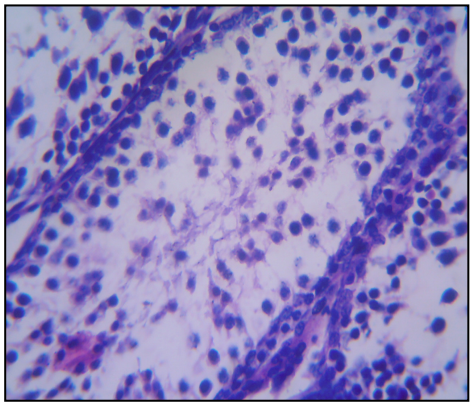
10x shows normal seminiferous tubules



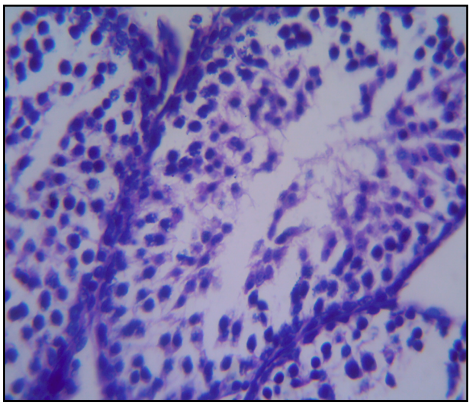
40x shows leydig cell



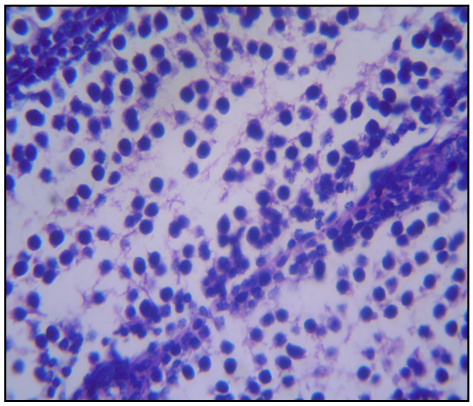
40x shows normal maturation



40x shows normal semini ferous tubules



40x shows normal spermatogenesis



40x shows varying stages of maturation

MICROSCOPIC APPEARANCE:

Section from testes with seminiferous tubules showing maturation arrest with lacking of spermatogenesis.

Name : **Ref. No. : [H0 330A/18]**	**Rec.On : 21/03/2018** **Rep.On : 18/04/2018**

HISTOPATHOLOGY

TOXICITY STUDY

SPECIMEN : A) Liver

Group – : Dr.Murugavel - OMA legyam.

GROSS APPEARANCE:

Received a specimen of liver measuring 3.5x2.3x1.4cms.

(PE): Two bits – One block.

MICROSCOPIC APPEARANCE:

Section from liver shows normal lobular architecture. Individual Hepatocytes shows no pathology. Portal triad shows mild periportal inflammation. Central vein shows congestion. Sinusoids show dilatation.

Dr.C.R.Ajeethkumar.M.D. (Path).

Consultant pathologists:
Dr.S.Kalyani.M.D. (Path), Dr. C.R.Ajeeth kumar.M.D. (Path),

Checked

Name : **Ref. No. : [H0 330B/17]**	**Rec.On : 21/03/2018** **Rep.On : 18/04/2018**

HISTOPATHOLOGY

Toxicity study

SPECIMEN : B) spleen.

Group – : Dr.Murugavel - OMA legyam

GROSS APPEARANCE:

Received a specimen of spleen measuring 2.5x0.7x0.3cms.

(PE): Two bits – One block.

MICROSCOPIC APPEARANCE:

Section studied from spleen shows normal white pulp and red pulp. Red pulp shows pigment laden macrophages and congested vessels. White pulp shows lymphocytic infiltrates forming germinal centre. The pencillar artery shows normal morphology. There is no evidence of toxic changes.

Dr.C.R.Ajeeth kumar. M.D. (Path),

Consultant pathologists:
Dr.S.Kalyani.M.D. (Path), Dr. C.R.Ajeeth kumar.M.D. (Path),

Checked

Name : **Ref. No. : [Ho 330C/18]**	**Rec.On : 21/03/2018** **Rep.On : 18/04/2018**

HISTOPATHOLOGY

Toxicity study

SPECIMEN : **C) Kidney**.

Group – : Dr.Murugavel - OMA legyam

GROSS APPEARANCE :

Received specimen of kidneys each measuring 1.4x0.7x0.5cms and 1.3x0.8x0.4cms.

PE : Two bits – One block.

MICROSCOPIC APPEARANCE:

Section from kidney shows both cortex and medulla. Glomeruli and tubules shows no significant pathology. Interstitium shows no significant pathology. Blood vessels show congestion. There is no evidence of toxic changes.

Dr. C.R.Ajeeth kumar.M.D. (Path).

Consultant pathologists:
Dr.S.Kalyani.M.D. (Path), Dr. C.R.Ajeeth kumar.M.D. (Path),

Checked

Name : **Ref. No. : [Ho 330D/18]**	**Rec.On : 21/03/2018** **Rep.On : 18/04/2018**

HISTOPATHOLOGY

Toxicity study

SPECIMEN : **D) Testis.**

Group – : Dr.Murugavel - OMA legyam

GROSS APPEARANCE :

Received specimen of both testis measuring each 1.1x0.7x0.5cms and 1.0x0.6x0.4cms.

PE : Two bits – One block.

MICROSCOPIC APPEARANCE:

Section from testes with seminiferous tubules showing normal spermatogenesis. Sertoli cells, leydig cell and interstitium shows normal morphology. No evidence of toxic changes.

Dr. C.R.Ajeeth kumar.M.D. (Path).

Consultant pathologists:
Dr.S.Kalyani.M.D. (Path), Dr. C.R.Ajeeth kumar.M.D. (Path),

ANNEXURE –V

ASSESSMENT FORMS

FORM I	**:** Screening and Selection Proforma
FORM I A	**:** History Proforma on Enrollment
FORM II	: Clinical assessment on enrollment
FORM II A	**:** Clinical assessment during and after trial
FORM III	: Laboratory Investigation on enrollment and conclusion of trial
FORM IV A	: Consent Form
FORM IV B	: Withdrawal form
FORM IV C	: Patient information sheet
FORM IV D	: Dietary Advice form
FORM IV E	: Adverse Reaction form
FORM IV F	: Discharge proforma

GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL

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BRANCH – III SIRAPPU MARUTHUVAM

A PILOT STUDY TO EVALUATE THE THERAPEUTIC EFFICACY OF SIDDHA FORMULATION "***OMA LEGIYAM***" INTERNAL & "**VETTIVER THYLAM**" EXTERNAL IN "**KALANJAGAPADAI**" (PSORIASIS).

FORM I – SCREENING & SELECTION PROFORMA

1. OP / IP NO : _____
2. NAME : _____
3. RELIGION : H / C / M / O
4. AGE / GENDER : _____
5. OCCUPATION : _____
6. INCOME : _____
7. CONTACT NO : _____
8. INCLUSION CRITERIA :

INCLUSION CRITERIA

- Macules
- Papules
- Pustules
- Plaques of erythema
- Candle-grease sign
- Auspitz sign
- Itching
- Keobner's phenomenon

Patients wtih Silvery white patches, Coin shaped lesions, Scaling with or without itching.

EXCLUSION CRITERIA

- Cardiac disease
- Malignancy

- Tuberculosis
- Hypertension
- Diabetes mellitus
- Use of narcotic drugs
- Pregnancy and lactation
- Evidence of any skin condition other then psoriasis

ADMITTED TO TRIAL:

YES NO

If Yes Serial Number :

Date :

Station:

Signature of the Investigator :

Signature of the Lecturer : **Signature of the HOD**

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FORM I A – HISTORY PROFORMA

1. SL.NO : _____
2. OP / IP NO : _____
3. NAME : _____
4. RELIGION : H / C / M / O
5. AGE / GENDER : _____
6. OCCUPATION : _____
7. INCOME : _____
8. CONTACT NUMBER : _____
9. MARITAL STATUS : Married / Unmarried
10. COMPLAINTS & DURATION :

11. PERSONAL HISTORY:

PERSONAL HABITS	YES	NO	IF YES SPECIFY DURATION
Smoking			
Tobacco Chewing			
Alcohol			
Narcotic Drug Addiction			

12. DRUG HISTORY:

Whether the Patient has underwent any allopathic Treatment

1. Yes 2. No.

If yes specify the nature of the drug and treatment duration _____

13. FAMILY HISTORY:

Whether this problem runs in family?

1. Yes 2. No

If yes, mention the relationship of affected person(s)

1. _____
2. _____

14. DIETARY HABITS :

1. Pure vegetarian ☐
2. Non-Vegetarian ☐

Date :

Station:

Signature of the Investigator :

Signature of the Lecturer : **Signature of the HOD**

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POST GRADUATE DEPARTMENT

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BRANCH – III SIRAPPU MARUTHUVAM

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FORM II AND II-A CLINICAL ASSESSMENT ON ENROLLMENT AND ON VISITS

1.	OP / IP No	:
2.	BED No	:
3.	SL. NO	:
4.	NAME	:
5.	AGE	:
6.	GENDER	:
7.	OCCUPATION	:
8.	SOCIAL STATUS	:
9.	DATE OF ADMISSION	:
10.	DATE OF DISCHARGE	:
11.	POSTAL ADDRESS	:
12.	COMPLAINTS & DURATION	:
13.	HISTORY OF PRESENT ILLNESS	:
14.	PAST HISTORY	:
15.	FAMILY HISTORY	:

16. MENSTRUAL HISTORY (If Applicable):

17. HABITS:

1. Smoker :
2. Alcoholic :
3. Tobbaco chewer :
4. Betel nut chewer :
5. Non-Vegetarian :
6. Drug addiction :

18. GENERAL EXAMINATION:

1. Body weight (Kg) :
2. Height (Cm) :
3. Body Temperature (F) :
4. Blood Pressure (mmHg) :
5. Pulse Rate (/min) :
6. Heart Rate (/min) :
7. Respiratory Rate (/min) :
8. Pallor :
9. Jaundice :
10. Clubbing :
11. Cyanosis :
12. Pedal Oedema :
13. Lymphadenopathy :
14. Jugular venous pulsation :

19. CLINICAL EXAMINATION:

I. INSPECTION:

1. Attitude :
2. Muscular spasm :
3. Muscle wasting – Proximal :
4. Muscle wasting – Distal :
5. Minor Joint Swelling :
6. Major Joint Swelling :
7. Nodules :
8. Deformity :

II. PALPATION:

1. Swelling :
2. Tenderness :
3. Joint Stiffness :
4. Muscle wasting :
5. Local heat :
6. Local Lymphadenopathy :
7. Pitting Oedema :
8. Nodules :

III. MOVEMENTS:

Restriction of joint movements

1.	Neck	:	Full	Partial
2.	Shoulder	:		
3.	Elbow joint	:		
4.	Knee joint	:		
5.	Ankle joint	:		
6.	Hip joint	:		
7.	Minor joints	:		

IV. PAIN:

1.	Onset :	Sudden	:	Gradual	:	
2.	Early morning stiffness :	Present	:	absent	:	
3.	Nature of pain:	Mild	:	Moderate	:	Severe:
4.	Aggravating factor –Movements		:			
5.	Relieving factor – rest		:			
6.	Stiffness		:			
7.	Tenderness		:			

V. CLINICAL ASSESSMENT :

1. Arthritis of three or more Joints :
2. Arthritis of hand joints :
3. Morning Stiffness :
4. Fever :
5. Anorexia :
6. Anaemia :
7. Spindle appearance of fingers :
8. Restricted movements :
9. Rheumatoid Nodules :
10. Numbness :

20. EXAMINATION OF OTHER SYSTEMS:

1. CVS :
2. RS :
3. CNS :
4. ABDOMEN :
5. GENITO – URINARY :

EXAMINATION – SIDDHA ASPECTS

1. NILAM:

1. Kurinji 2. Mullai 3. Marutham 4. Neithal 5. Paalai

2. KAALAM:

1. Kaar Kaalam 2. Koothir Kaalam 3. Munpani Kaalam
4. Pinpani Kaalam 5. Elavenir Kaalam 6. Mudhuvenir Kaalam

3. YAAKKAI:

1. Vatham 2. Pitham 3. Kabam
4. Vathapitham 5. Pithavatham 6. Kabavatham
7. Vathakabam 8. Pithakabam 9. Kabapitham

4. GUNAM:

1. Sathuvam 2. Rasatham 3. Thamasam

5. KANMENDHIRIUM / KANMAVIDAYAM

1. Kai :
2. Kaal :
3. Vaai :
4. Eruvaai :
5. Karuvaai :

6. UYIR THATHUKKAL:

I. VATHAM:

1. Piraanan :
2. Abaanan :
3. Viyaanan :
4. Uthaanan :
5. Samaanan :
6. Naagan :
7. Koorman :
8. Kirukaran :
9. Devathathan :
10. Dhananjeyan :

II. PITHAM :

1. Analagam :
2. Ranjagam :
3. Saathagam :
4. Aalosagam :
5. Praasagam :

III. KABAM:

1. Avalambagam :
2. Kilethagam :
3. Pothagam :
4. Tharpagam :
5. Santhigam :

7. UDAL THAATHUKKAL:

1. Saaram :
2. Senneer :
3. Oon :
4. Kozhuppu :
5. Enbu :
6. Moolai :
7. Sukkilam / Suronitham:

8. ENVAGAI THERVUGAL:

1. Naadi :
2. Sparisam :
3. Naa :
4. Niram :
5. Mozhi :
6. Vizhi :
7. Malam :

   i. Niram: ii. Thanmai: iii. Irugal: iv.Ilagal:

8. Moothiram :

I. NEERKURI:

a. Niram :

b. Manam :

c. Edai :

d. Nurai :

e. Enjal :

II. NEIKURI:

Vatha Neer : Pittha Neer : Kaba Neer :

Date :

Station:

Signature of the Investigator :

Signature of the Lecturer : **Signature of the HOD**

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FORM III – LABORATORY INVESTIGATION

1. BLOOD:
   1. TC : (Cells / Cumm)
   2. DC (%) : N : L : M : E :
   3. ESR (mm) : ½ hr : 1 hr :
   4. Hb :
   5. Blood Sugar : a) Fasting : b) Post Prandial :
   6. Renal function tests:
      Blood Urea: Serum creatinine:
   7. Lipid profile :
      HDL: LDL: VLDL:
      Total Cholesterol : TGL :
   8. Liver Function tests:
      Serum Bilirubin : Total Direct Indirect

SPECIFIC INVESTIGATIONS

RA factor :

ASO titre :

C-Reactive Protein :

SGOT :

SGPT :

Serum albumin & globulin :

Total protein :

II. URINE:

1. Albumin :
2. Sugar :
3. Epithelial cells :
4. Pus cells :
5. Red blood cells :
6. Casts / Crystals :

III. MOTION:

1. Ova :
2. Cyst :
3. Occult blood :
4. Pus cells :

IV. X-RAY FINDINGS

Date :

Station:

Signature of the Investigator :

Signature of the Lecturer : **Signature of the HOD**

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FORM IV A – CONSENT FORM

CERTIFICATE BY INVESTIGATOR

I certify that I have disclosed all the details about the study in the terms readily understood by the patient.

Signature _____

Date _____

Name _____

CONSENT BY PATIENT

I have been informed to my satisfaction, by the attending physician, the purpose of the clinical trial, and the nature of drug treatment and follow-up including the laboratory investigations to be performed to monitor and safeguard my body functions.

I am aware of my right to opt out of the trial at any time during the course of the trial without having to give the reasons for doing so.

I exercising my free power of choice, hereby give my consent to be included as a subject in the clinical trial of "***OMA LEGIYAM***" (Internal drug) and "VETTIVER THYLAM" (External drug) for the treatment of "KALANJAGAPADAI" (PSORIASIS)".

Place :

Date :

Signature :

Name :

Witness Signature:

Name :

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POST GRADUATE DEPARTMENT

PALAYAMKOTTAI, TIRUNELVELI – 627002

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A PILOT STUDY TO EVALUATE THE THERAPEUTIC EFFICACY OF SIDDHA FORMULATION "***OMA LEGIYAM***" INTERNAL & "**VETTIVER THYLAM**" EXTERNAL IN "**KALANJAGAPADAI**" (PSORIASIS).

FORM VI B WITHDRAWAL FORM

1. SL.NO : _____
2. OP / IP NO : _____
3. NAME : _____
4. RELIGION : H / C / M / O
5. AGE / GENDER : _____
6. OCCUPATION : _____
7. SOCIAL STATUS : _____
8. CONTACT NO : _____
9. DATE OF TRIAL COMMENCEMENT : _____
10. DATE OF WITHDRAWAL FROM TRIAL : _____
11. REASONS FOR WITHDRAWAL : _____

- Long absence at reporting : Yes / No
- Irregular treatment : Yes / No
- Shift of locality : Yes / No
- Increase in severity of symptoms : Yes / No
- Development of severe adverse drug reactions: Yes / No

Date :

Station:

Signature of the Investigator :

Signature of the Lecturer : **Signature of the HOD**

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PALAYAMKOTTAI, TIRUNELVELI – 627002

BRANCH – III (SIRAPPU MARUTHUVAM)

A PILOT STUDY TO EVALUATE THE THERAPEUTIC EFFICACY OF SIDDHA FORMULATION "***OMA LEGIYAM***" INTERNAL & "**VETTIVER THYLAM**" EXTERNAL IN "**KALANJAGAPADAI**" (PSORIASIS).

FORM IV-C DRUG COMPLIANCE FORM

Name of the Drug : NARKARANHTHAI LEGIYAM

Drugs issued : (Mg / Gram)

Drugs returned : (Mg / Gram)

S. NO	**DATE**	**DRUG TAKEN TIME**	
		MORNING / TIME	**EVENING / TIME**
Day 1			
Day 2			
Day 3			
Day 4			
Day 5			
Day 6			
Day 7			
Day 13			
Day 14			
Day 15			
Day 16			
Day 17			
Day 18			
Day 19			
Day 25			
Day 26			
Day 27			
Day 28			

Day 29			
Day 30			
Day 31			
Day 37			
Day 38			
Day 39			
Day 40			
Day 41			
Day 42			
Day 43			
Day 44			
Day 45			
Day 46			
Day 47			
Day 48			

Date :

Station:

Signature of the Investigator :

Signature of the Lecturer : **Signature of the HOD**

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- Gray's Anatomy.
- Gunapadam Mooligai Vaguppu- Dr.C.S.Murugesa mudhaliyar
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- Maan marukiyam.
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- Noi Naadal Noi Mudhal Naadal Thirattu-part 11 Dr.P. Shanmugavelu.
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- Thirukkural.
- Thirumoolar vaithyam
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